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Vol. XIV, No. 6 JUNE, 1925

JOURNAL
OF THE
AMERICAN PHARMACEUTICAL ASSOCIATION

CONTENTS

Frontispiece and Sketch—Lewis Christopher Hopp 463
The Tenth Revision of the United States Pharmacopœia Official, January 1, 1926 467
Editorial:
The Seventy-Third Annual Convention at Des Moines during the Week of August 24 468
Pharmacy Week 469
Price Maintenance 471
A Simple and Rapid Electrometric Determination of Alkaloids without the Use of Hydrogen Electrode—Popoff and McHenry 473
The Action of Red Phosphorus on Iodine in Organic Solvents—Traxler and Germann 476
The Disinfectant Action and Toxicity of Trichlor-Isopropyl Alcohol—Howard and Stimpert 487
Cultivation of the Opium Poppy in North Carolina—Howell 489
The Effect of Age on the Activity of Tincture of Digitalis—Haskell 492
Studies in the Genus Mentha. VI. The Volatile Oil of a Strain of Japanese Peppermint Grown by the Wisconsin Pharmaceutical Experiment Station, at Madison—Jenison and Kremers 495
Medicinal Plants of the Aztecs Which Are Still in Common Use in Mexico—Braubach 498
Fatal Poisoning Cases in Hennepin County, Minnesota, during 1923 and 1924—Wulling 505
The Arsenical Solutions. No. 3—Langenhan 507
Bibliography of Pharmaceutical Research—DuMez 512
Drug Store Management—Maier 516
A Retrospect of Pharmacy 518
The Remington Honor Medal 521
A Review of the Principal Events in American Medicine—Lloyd 525
The New U. S. Pharmacopœia, Tenth Revision (U. S. P. X.)—Wood, Jr., M.D 536
The Department of the American Conference of Pharmaceutical Faculties 541
To the Members of the American Conference of Pharmaceutical Faculties 541
The Three-Year Course—Cooper 542
Correspondence 544
Proceedings of the Local Branches 545
Association Business 551
Editorial Notes 554
Obituary 561
Societies and Colleges 562
The Pharmacist and the Law 566
Book Notices and Reviews 567
Advertising—Cover pages 2, 3 and 4 and pp. I-XX.

Published Monthly by the American Pharmaceutical Association: Office of publication, 211 Church St., Easton, Pa. Editorial Office, 253 Bourse Building, Philadelphia, Pa.
Annual Subscription, $4.00; Single Numbers, 35 Cents.

THE SEVENTY-THIRD ANNUAL CONVENTION OF THE AMERICAN PHARMACEUTICAL ASSOCIATION WILL BE HELD IN DES MOINES, IA., DURING THE WEEK OF AUGUST 24, 1925.

The 1925 Meetings of the American Conference of Pharmaceutical Faculties and the National Association of Boards of Pharmacy will also be held in Des Moines, during the week of August 24, 1925.

For Association Roster, see pages x, xii and xiv.

Entered as second-class Matter, January 23, 1917, at the Post Office at Easton, Pa., under the Act of March 3, 1879. Acceptance for mailing at special rate of postage provided for in section 1103. Act of October 3, 1917; authorized July 10, 1918.

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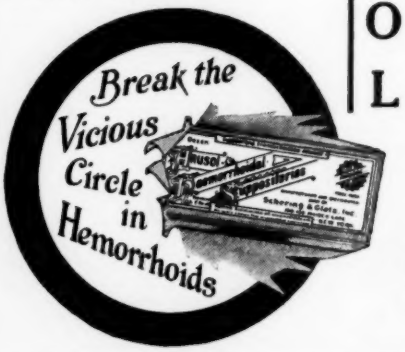

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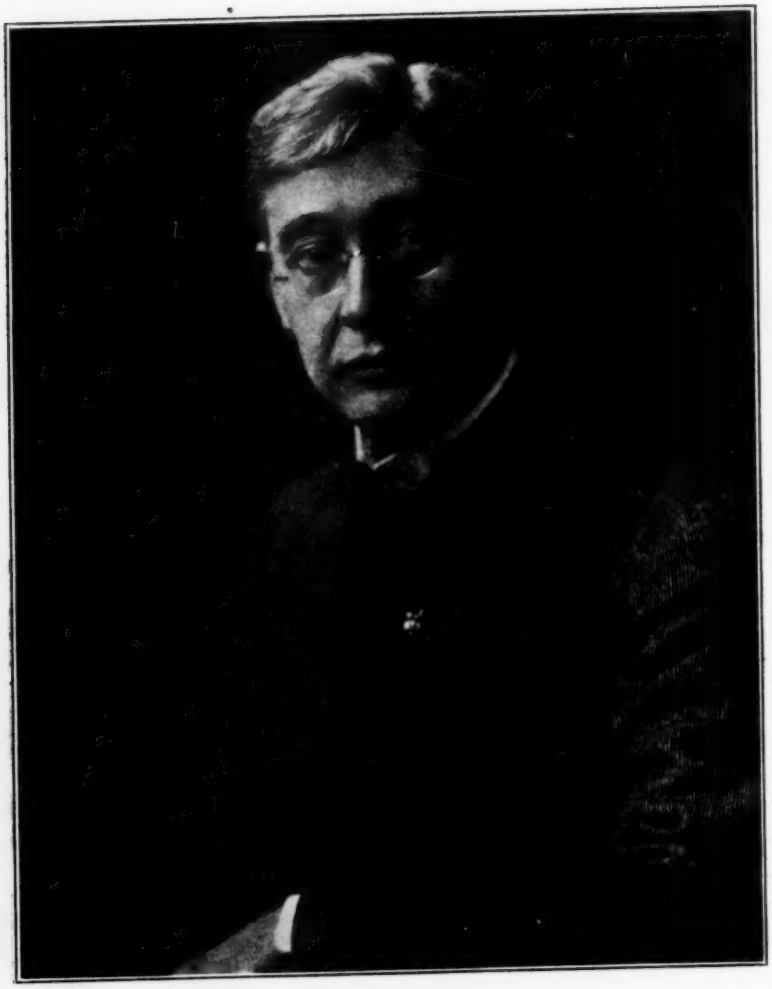
LEWIS CHRISTOPHER HOPP

CLEVELAND, OHIO

Fifty-first President of the AMERICAN PHARMACEUTICAL ASSOCIATION,
and for forty-nine years a member of this Organization



LEWIS C. HOPP.

JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION

VOL. XIV JUNE, 1925 No. 6

LEWIS CHRISTOPHER HOPP.

Another faithful follower of Pharmacy has gone to his reward; for on May 7th, Lewis C. Hopp, a Past-President of the AMERICAN PHARMACEUTICAL ASSOCIATION, passed into the Great Unknown.

Mr. Hopp was born in Cleveland in 1856, his parents having moved to America from Bavaria, where Mr. Hopp's grandfather had been an officer in the court of King Ludwig.

After education in the public schools of Cleveland, Mr. Hopp entered the drug store of Alfred Mayell, Euclid Ave. and Erie Sts., and his connection with that store ceased only upon the day of his death.

After a few years of apprenticeship with Mr. Mayell, young Hopp traveled to Philadelphia where he spent two years at the Philadelphia College of Pharmacy graduating with honors in the class of 1875 with a thesis on Sanguinaria to his credit. He performed his research work under the guidance of that great teacher John M. Maisch, whose influence affected Mr. Hopp throughout his entire life. Returning, upon his graduation, to the Mayell store, he resumed his life-work embued with the idea that pharmacy was more than the mere gaining of a livelihood. While he was at college, Professor Maisch charged him with the duty of establishing a State Pharmaceutical Association in Ohio and in 1879 young Hopp with the support of some of his elders issued a call for the organization meeting at Columbus of the O. S. P. A., which has flourished from that day to this. For the first 25 years of the O. S. P. A. Mr. Hopp was its Secretary and undisputed leader. Expressing a desire to resign after a quarter-century of service, he was chosen President of the Association at its silver jubilee held in Toledo in 1903. Those who were present at that memorable meeting will never forget the tender emotion manifested by Mr. Hopp as he and his dear wife received the beautiful chest of silver presented to them by their friends at the banquet held in their honor.

It was to be expected that the youthful founder of the O. S. P. A. would soon become interested in the AMERICAN PHARMACEUTICAL ASSOCIATION, and Mr. Hopp joined our organization at the meeting of 1876. The first meeting attended by Mr. Hopp was that held in Cincinnati in 1887 and thereafter he became quite a regular attendant, being present at 30 meetings of the 38 elapsing between 1887 and 1924. Recognized by the leaders of 40 years ago as a man of promise, he was soon given responsibilities in our Association. Thus, in 1887, he became a member of the Council; in 1896 he was chosen Chairman of the Commercial Section

and after serving as Local Secretary in 1899 and as Vice-President (1899–1900) at the Mackinac meeting of 1903, he was elected President of the Association. His services as a member of the A. PH. A. Council include some of the finest work of his career, the appreciation of the Association being manifested in the fact that he was a member of the A. PH. A. Council from 1887 to 1922 with only 10 years of Council inactivity during those 35 years. He was elected Chairman of the Council in 1917 and served in that capacity until 1920.

The AMERICAN PHARMACEUTICAL ASSOCIATION was not Mr. Hopp's sole national interest. He was one of the organizers of the National Association of Retail Druggists, was elected its first Vice-President in 1902 and was a member of its committee from 1904 to 1906. He was a delegate to the Pharmacopœial Conventions of 1890, 1900, 1910 and 1920 and served as a member of the Revision Committee during the decade 1910–1920. He was an incorporator of the American Druggists' Fire Insurance Co. and was one of its directors from its foundation to the day of his death.

Locally he was a power in pharmacy. For many years he was a leader in the Cleveland Pharmaceutical Association and its successor, the Northern Ohio Druggists' Association. He became a trustee of the Cleveland School of Pharmacy in 1899 and was its President from 1903 until it became an integral part of Western Reserve University in 1919. The affiliation in 1908 of the School of Pharmacy with the University was made possible chiefly through Mr. Hopp's aid and the splendid building purchased by the School in 1910 could not have been financed had it not been for Mr. Hopp's dynamic energy. In the civic affairs of Cleveland, Mr. Hopp took an active interest. He was a Mason, a member of the Cleveland Chamber of Commerce and the Cleveland Athletic Club and Canterbury Country Club.

Mr. Hopp remained a bachelor until comparatively late in life. His younger days were so full of the tasks of the day and the needs of the hour that he had little time for the social side. It was his great good fortune to marry in 1896 Miss Martha Adomeit and the wedded life of this well-chosen couple was an ideal one. Mrs. Hopp's death in 1922, just after she had exhibited her admirable qualities to the best advantage as charming hostess at the Cleveland meeting of the A. PH. A., was to her husband a crushing blow. He bore up bravely under his loss but his close friends could note that he was a changed man. It is no exaggeration to say that Death was kind in permitting his spirit to join his beloved within less than three years.

The union of Mr. and Mrs. Hopp was blessed by two lovely daughters, Erma (now Mrs. Russell Hohl) and Erana. These two young ladies have been frequent attendants at the meetings of the AMERICAN PHARMACEUTICAL ASSOCIATION and their many friends in the association sympathize with them in their hour of bereavement.

To discuss Hopp, the man, is a difficult task to one who was honored by his close friendship for more than a quarter of a century. Introduced into the beautiful home life of the Hopps during their first year of married life, the writer knew Lewis Christopher Hopp as few men have been privileged to do and many of these associations seem too sacred to express in words. There have been few men in the writer's acquaintance who were so thoroughly honest as "Lew Hopp;" few are there who loved pharmacy with the devotion that Hopp lavished upon it; few pharmacists who were more punctilious concerning the ethics of pharmacy; more zealous of the honor of pharmacy. Hopp hated sham of all sorts with an honest hatred and the bluntness that many casual acquaintances criticized was an honest man's revulsion of feeling against pretense. But what a comrade Hopp was in his chosen circle of trusted friends! Tender indeed are the memories that pass in review before the writer as he recalls the hours of recreation spent with Hopp on association outings and in the privacy of his lovely home; memories of a great-hearted honest man, the place of whom is hard to fill; memories that make his comrades thank God that they were vouchsafed his friendship. H. V. A.

THE TENTH REVISION OF THE UNITED STATES PHARMACOPŒIA OFFICIAL, JANUARY 1, 1926.

The Board of Trustees of the United States Pharmacopœial Convention has selected January 1, 1926, as the date on which the new Pharmacopœia becomes official. It cannot be definitely stated just when the book will be on sale but the Trustees are confident that the new revision will be available in ample time to supply the schools of pharmacy with the new standard for use during the session of 1925–26. Just as soon as the U. S. P. X is available, announcement will be made by the sales agent, J. B. Lippincott Company of Philadelphia.

Arrangements are being made to place on the market throughout the entire United States on a date to be specified 30,000 buckram bound copies of the new book. The retail price is $4.00 per copy. It is advisable for schools and other dealers handling the book in quantity to place advance orders with the J. B. Lippincott Company without delay.

The price of the U. S. P. IX which has been the official standard for the past ten years has been reduced to $2.00 per copy by the Board of Trustees. The book may be purchased direct from P. Blakiston's Son & Company, Philadelphia. The reduction in price has been made in order to encourage pharmacists, schools and libraries in keeping sets of the Pharmacopœia for official use until January 1, and future use as works of reference. More than 80,000 copies of the U. S. P. IX have been sold.

The Spanish Translation of the new Pharmacopœia is being made for use in South and Central America and other Spanish-speaking countries of the western world. The Spanish Translation of the U. S. P. VIII and the U. S. P. IX met with a large demand.

The Board of Trustees in coöperation with the AMERICAN PHARMACEUTICAL ASSOCIATION is arranging to publish an Abstract of Comments on the Pharmacopœia. This is very desirable because the United States Government has discontinued the publication of this series of books.

The Board of Trustees and the Committee on Revision will be represented at the International Conference for the Unification of Formulas for Potent Remedies, which meets in Europe, this fall, by Dr. A. G. DuMez of the United States Department of Hygiene. The U. S. P. was the first Pharmacopœia to recognize the standards which have already been adopted by the International Conference.

The Joseph P. Remington Memorial which has been under consideration by the Board of Trustees since the death of Professor Remington is now assuming definite form. A fund will be set apart so that the interest on the same can be used for research work on subjects of Pharmacopœial interest and value. The AMERICAN PHARMACEUTICAL ASSOCIATION will be the trustee of the fund and the Chairman of the Committee on Revision of the U. S. P. will be chairman of a standing committee to be named by the Board of Trustees for the purpose of determining the subjects of research work and to recommend to the trustees the persons granted awards from the Remington Memorial Fund.

HENRY M. WHELPLEY,
Secretary Board of Trustees.

(Received June 8, 1925).

EDITORIAL

E. G. EBERLE, EDITOR 253 Bourse Bldg., PHILADELPHIA

THE SEVENTY-THIRD ANNUAL CONVENTION AT DES MOINES DURING THE WEEK OF AUGUST 24.

THE Des Moines meeting of the AMERICAN PHARMACEUTICAL ASSOCIATION, which will be held month after next, specifically during the week of August 24, promises to be one of the most important in the history of the organization. Further steps will be taken for the establishment of the American Pharmacy Headquarters, and the full-time secretary will be chosen. Both transactions promise much for American Pharmacy and the AMERICAN PHARMACEUTICAL ASSOCIATION.

The American Conference of Pharmaceutical Faculties and the National Association of Boards of Pharmacy have, among other problems for consideration, the adjustment of the minimum 3-year course in schools and colleges of pharmacy to the curricula, and acceptance of candidates for the Board examinations. Pharmacognosists, plant chemists, and others interested in drugs and drug-yielding plants, will again confer on all subjects relating to this division. The Pharmaceutical Laboratory Conference proved a great success at the Buffalo meeting and it is to be expected that the work so well begun will be of even greater value to the participants this year.

The census of pharmaceutical research, published in the May JOURNAL, A. PH. A., is indicative of the development of pharmaceutical research and of the increasing number of research workers, and also of a growing interest in the coming conference.

Both the U. S. Pharmacopœia X, and National Formulary V, are nearing completion, so that the reports of this year will be, practically, on the completed revisions. The work on the A. PH. A. Recipe Book has progressed, as indicated by the editorial in the April JOURNAL, A. PH. A. A number of chapters of the History of American Pharmacy have been written, and in part revised. The intent of the authors is not only to have the work comprehensive but a record of facts, so that he who reads may find reliable data and information. It is a great undertaking, and its completion will represent a commemoration volume of the American Pharmacy Headquarters. The revision of the Pharmaceutical Syllabus has been completed, and may be obtained from Secretary C. M. Snow, or Chairman Theodore J. Bradley—see Bulletins in May JOURNAL, A. PH. A., p. 444.

The foregoing references speak of pharmaceutical progress, and the programs of the Sections are, in a way, linked up with these great undertakings. The chairmen and secretaries of these sections will be very busy during the next few weeks, and the coöperation of the members by responding promptly will lighten their work and add interest and value to the sessions. It is not necessary that members wait for formal requests from the Section officers, whose addresses will be found in the Roster on pp. X to XIV of the JOURNAL; in fact, such coöperation will be appreciated by them. If the papers of prospective contributors have not been completed, the titles may be sent in and the papers at a later day. In

that way the contributions will be given in the program. Carbon copies of the papers may be sent to the JOURNAL Office.

State Associations, at their annual meetings, should pass on resolutions to be submitted to the House of Delegates A. PH. A., and have them presented by their respective delegates. Credential blanks for delegates may be had of Secretary William B. Day, 701 South Wood St., Chicago, Ill. Committee reports should, as far as possible, be signed by all members of the respective committees.

Referring again to papers, each member will express his preference of the Section before which his report is to be read and discussed. However, there are certain rules which govern and in some instances it may be necessary to refer a paper to some other Section than contemplated by the author; abstracts of articles should accompany the originals, if more than 10 minutes are required for reading; the time for presentation may be extended by consent. The By-Laws on p. 1069, November JOURNAL, A. PH. A., were adopted in substance by all sections with the necessary changes to make them applicable.

Doubtless, a meeting will be provided for the State Chairmen of the American Pharmacy Headquarters' Fund, at which time reports will be made and action taken to bring the campaign for funds to a successful conclusion. Pharmacists never have had such an opportunity to express their belief in the mission of pharmacy.

The Headquarters will become an accomplishment, and to that end a large number of all of the divisions of the drug trade have subscribed liberally, and all others in any way associated with these industries should do likewise *as an expression of their faith in Pharmacy.* E. G. E.

PHARMACY WEEK.

IN HIS address as Chairman of the Section on Practical Pharmacy and Dispensing of the AMERICAN PHARMACEUTICAL ASSOCIATION, at the 1924 meeting, Robert J. Ruth pointed out the value and importance of enlisting all pharmaceutical interests in a campaign to inform the public relative to the mission and service of pharmacy. He outlined the work of "A National Pharmaceutical Week" that would concentrate the thoughts of the public in general on that which pharmacy has done, is doing, and contemplates doing in order to give it better service and protection—to this end the people must be informed of the importance of giving support, by encouragement, to those who seek to raise the standards of pharmacy, whereby public health is protected and the progress of pharmacy stimulated. Education is an essential of progress. We are sometimes impatient because the laity and others do not accept our views, and urge laws to compel them to do those things which we know to be good for them. This is not always the right way. Laws are no stronger than the public opinion that supports them, and public opinion must be created by education.

The address referred to is printed on p. 184 of the November JOURNAL, A. PH A., and editorial comment is made on p. 886 of the October number. Mr. Ruth gave thoughtful consideration to the subject, realizing that every week should be "pharmacy week" in a pharmacy; he stressed the importance of an educational

week during which the public would be informed regarding the mission and service of pharmacy through articles in newspapers and magazines, addresses at Rotary, Kiwanis, and other meetings, Chambers of Commerce, Women's clubs, neighborhood clubs, etc., of which public health should be the keynote, and pharmacy's part in this important work, by observance of pharmaceutical ethics. Chairman Ruth dwelt at length on ways and means for making "Pharmacy Week" a success and benefit.

The point of paramount importance, in order that "Pharmacy Week" may be a real benefit, is to disseminate information relative to pharmacy—that higher educational standards are essential for coöperation with doctors—that improper conduct of a pharmacy represents not only poor service but may endanger health and discredit a neighborhood. Information along these lines seems of greatest importance, and can be communicated by the means that have been suggested. Some may contend that there are too many "days" and "weeks" now, and that they cease to hold the interest of the public, but this is a different proposition—it is to inform and, certainly, a message of health conservation, to keep the neighborhood free from undesirables, conveyed by right methods, will enlist interest.

The pharmacy during the week, which has been fixed as the last week of October, should, in a becoming way, inform the public; the show window—which is "the outward visible sign" of the store—with educational displays that can be comprehended by those who pass, and the inside of the store should also tell the story of pharmacy. All good publicity aids the cause. These general suggestions are sufficient, for each one will develop ideas according to his or her preferences. If pharmacy is to benefit from a "Pharmacy Week" that phase of the store must be the feature of the week; its benefits will be far-reaching if *properly conducted.*

In the address referred to the suggestion was made that the inter-relation of interests be discussed; that meetings be held with members of the bar, legislators, etc., for the discussion of measures that will be acceptable, enforceable, and advance the cause of pharmacy. The interest of educators may also be enlisted, and students directed to pharmacy for their life work.

An editorial comment on a related subject and an educator are quoted in the following paragraphs:

" 'Educational campaigns are all right,' our friend said. 'Too much cannot be done, perhaps, to inform people at large about the importance of preserving health or regaining it after it has been lost. But when we leave this altruistic field and get wholly and noisily into the field of self-interest what, finally, must the casual bystander think? May we not expect a little criticism? Will not the thin veil be penetrated and a little tinge of disgust be created?

" 'To be perfectly open and above-board nearly always has its virtue. A man or an enterprise may be frankly commercial, all the claims made may be on a commercial basis, and still no harm will be done, for everything will be taken at its face value and no further thought given to the matter, one way or the other. Thus the slogan "Try the Drug Store First" becomes a masterpiece. It will result in additional trade in many drug stores, and the man who devised it should receive a great deal of credit for his work. Everything being on the dollars-and-cents basis, the situation is understood and accepted without reserve by all the parties

concerned. But when we get to carrying water on two shoulders then the trouble begins.'

"Two thoughts are concerned here, it will be noticed. One is that the status of the druggist as a professional man should not be questioned, even inferentially. The other is that the druggist should not exploit his professionalism with the thought in mind of advancing his commercial activity by such a course. Both points, as stated, are hard to get away from. The professor is much more than half right."

There are great possibilities in "Pharmacy Week," and the American Pharmacy Headquarters should be featured. It is not unlikely that its location will have been determined before October. The public is interested in the library and museum; a realization of the value of museums is growing. E. G. E.

PRICE MAINTENANCE.

THE visit of Sir William S. Glyn-Jones to Canada and his side trip to the United States have stimulated an interest in the subject of price maintenance. There is reasonable assurance that the method followed in Great Britain will, with some changes, be adopted in Canada; here in the United States there may be a modification of the price maintenance bills, which are nearing enactment, even though slowly. It may safely be said that the visitor impressed those who heard him outline the Proprietary Articles Trade Association plan, and gave encouragement to his listeners that the day is not distant when fixed prices will be established as a general practice and, perhaps, a legal demand. Coöperation is an essential factor in bringing about uniformity in sale prices. Sir William remarked that there are difficulties to overcome in trade relations, but all the divisions can agree on moral rights—"the public has never asked druggists to work for nothing and never will."

There is bound to be a minimum profit factor which courts as well as patrons will accept as right and necessary for proper conduct of business, and that means for the welfare of all citizens. Price-cutting began and obtains because some merchants think they can, or do, draw patronage from competitors, because they (the cutters) rely on their sales systems to make up in some way the loss sustained by under-selling; it creates instability and destroys confidence.

The P. A. T. A. plan had its inception because a large part of Sir William's sales were made without profit, and this prompted him to sell, whenever possible, articles that would give him a profit, and to discourage, without unreasonable prejudice, the sale of items that represented a loss. The latter had been displaced by the former by means of publicity. Admittedly, there should have been profit, but prevailing methods of merchandizing of the distributors in dealing with consumers had not only destroyed the profit but confidence as well; buyers were no longer certain that the price they had paid was the lowest obtainable. The same influence prompted the retailer to question whether the wholesaler was not showing preference to a competitor, and the wholesaler felt the same way about the manufacturer.

It did not take so very long to recognize the effect of the trade conditions referred to, both in England and the United States. In the former country it was possible to fix reasonable profits for each division; in the United States there was interference by courts, but there is progress toward uniformity in prices which will meet general approval. In other industries values are fixed by manufacturers. Why should it not be possible with articles of merchandise sold by druggists? It works in England, why not in the Unites States? Admittedly, we cannot proceed along the same lines, but methods can be provided which will bring about related results. Sir William cited examples of the effectiveness of the P. A. T. A. plan in England and showed that conditions were quite the reverse here. He had purchased several items which are sold at fixed prices in England, at three different prices for the same articles, and all of them below manufacturer's list. He also said that if things had continued in England as before the time of the P. A. T. A. organization, the retail drug trade would have been in the hands of a comparative few, and he was confident that 80,000 retailers served the public better. Pharmacists need not be told what exclusion of the independent retailers means; wholesalers and manufacturers know the dangers of control by a few, and the thinking patrons can be made to grasp the significance, for at the opportune time prices would be advanced, or articles which they had need of would be discontinued. When once the public realizes that a merchandiser must have income in excess of overhead costs in order to meet living expenses, it will not be difficult to gain its support. Public opinion must be developed by education—it governs business conditions and prompts enactment of desirable trade regulations. E. G. E.

THE HANDMAIDS OF MEDICINE.

Lawrence H. Baker—formerly of the faculty of Johns Hopkins University, now of the editorial staff of the *Baltimore Sun*—contributes an article under above caption to the *Atlantic Monthly* for June. He describes the holy of holies in the sanctuary of Asclepius, God of healing, at the foot of the Acropolis in Athens, and then compares the period when a man imagined a close relation between religion and disease with present-day thought. He states that behind the prescription calling for fillet of a fenny snake****eye of newt and toe of frog, etc., "has been found a substantial natural justification, even though Macbeth's witches may not have known its existence. The pharmacologist has extracted bufagin, and the administration of bile and gland therapy are cited. Thus by interesting steps the writer presents medical history.

"Medicine, chemistry, physics, biology, and psychology—these are the ends" the writer states, "at least the visible, modern ends of the thought started when the first Job was visited with boils or trodden upon by a mastodon. The nature of the catastrophe is immaterial. Medicine is the patriarch of the group, but a patriarch who has only recently come to mobilize the entire forces of his family in the age-old feud with disease."

The article is well worth reading, it is interesting, informative; however, the pharmacist should have been mentioned somewhere. Perhaps the author thought of him in connection with Medicine, but the physicist and the pharmacologist are thus favored and also the chemist. The interesting article closes: "Owing to the vast variety of aspects presented in the human problem—for each person may be thought of as offering a new variation of some medical law—perhaps medicine can never be anything but empirical. But herein lies the greatest hope for its advance. 'Empirical' relates to experience gained by test and trial. That which tests and tries may evolve many things. The medicine of 1950 may make that of to-day seem crude, even recklessly dangerous; and the medicine of 2000 A. D. may look back with indulgence on that of 1950."

A SIMPLE AND RAPID ELECTROMETRIC DETERMINATION OF ALKALOIDS WITHOUT THE USE OF HYDROGEN ELECTRODE.

BY STEPHEN POPOFF AND M. J. MCHENRY.

The quantitative determination of alkaloids has been accomplished by using physico-chemical methods with varying degree of success. McGill[1,2] and his co-workers have used the hydrogen electrode, Kolthoff,[3] Treadwell and Janett,[4] Dutoit and Meyer-Levy[5] and others have used conductometric methods, Wagner and McGill[6] employ the quinhydrone electrode while Krantz, Jr.[7] makes use of the potentiometer in the quantitative analysis of alkaloidal solutions. Colorimetric methods have been used but, as pointed out by McGill, the end-point, at least in some cases, is not sharp and definite.

Recent advances along the use of physico-chemical methods in analytical chemistry have shown the enormous and very useful applications of the electrometric methods. In connection with the analysis of alkaloids, McGill[1] states: "Electrometric methods afford opportunity of avoiding the long drawn out purification and the necessity of choosing the proper indicator as well as the correct shade of color for the end-point." Kolthoff is quoted in the abstract of discussion of Krantz's[7] paper as saying that the hydrogen electrode reduces the alkaloids and that there could not be equilibrium where there is reduction. This may account for the difference of results obtained by McGill, comparing the electrometric with the U. S. P. method. It is very difficult to prepare most alkaloids of 100% purity, and it is still more difficult to draw any conclusion as to whether or not the colorimetric or the electrometric methods give more nearly correct results.

In order to avoid the use of the hydrogen electrode in reactions in which reduction takes place, various electrodes have been devised. Haber and Klemenslowics[8] and, recently, A. L. Steiger[9] have used glass electrode in place of the hydrogen electrode while the quinhydrone has been employed for the determination of p_H in acid solution (the quinhydrone method being useless in alkaline solution). The theory of the above electrodes has been well developed but their use is limited and in case of the glass electrode, equilibrium is obtained with difficulty. Recently P. van der Meulen and Wilcoxon[10] used a plain platinum wire in place of the hydrogen electrode in titration of acidimetry and alkalimetry. Heretofore, the hydrogen electrode has been used only in titrations involving acids, bases and salts, while the platinum wire is used only in reactions involving oxidation and reduction. In this connection, it is well to state the use of the oxygen electrode

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[1] McGill and Faulkner, JOUR. A. PH. A., 11, 1003–7 (1922).

[2] McGill and Wagener, *Ibid.*, 12, 855–6 (1923).

[3] Kolthoff, *Z. anorg. allgem. Chem.*, 112, 196–208 (1920).

[4] Treadwell and Janett, *Helv. Chim. Acta*, 6, 734–43 (1923).

[5] Dutoit and Meyer-Levy, *Jour. Chim. Phys.*, 14, 355–60 (1916).

[6] Wagner and McGill, JOUR. A. PH. A., 14, 288–94 (1925).

[7] Krantz, *Ibid.*, 14, 294–99 (1925).

[8] Haber and Klemenslowics, *Z. Physik. Chem.*, Vol. 56, p. 385.

[9] A. L. Steiger, *Z. Elektrochem.*, 30, 259–63 (1924).

[10] P. van der Meulen and Wilcoxon, *Ind. Eng. Chem.*, 15, 62–3 (1923).

by Furman[1] and others, especially in the presence of oxidizing agents which will be reduced by the hydrogen electrode. However, the oxygen electrode comes to equilibrium rather slowly and of necessity its use is limited.

This method of van der Meulen has been studied extensively and in another article we shall point out its numerous applications in some important theoretical and practical problems. We shall make no attempt at this time to develop the theory of the use of plain platinum wire in titrations involving acidimetry and alkalimetry; neither shall we claim that voltage readings were obtained after complete equilibrium had been reached, as this is hardly necessary. Numerous titrations involving acids and bases have shown that it is not necessary to wait more than one-half minute before taking voltage readings. The end-point is determined by a process of interpolation, using potential readings and cubic centimeters of solutions obtained immediately preceding and following the end-point. The following data will illustrate the method used:

Cc. of reagent.	E.	dE.
39.86	0.295	
39.89	0.283	0.012
39.92	0.246	0.037
39.95	0.204	0.042
39.98	0.194	0.010

The end-point is between 39.92 and 39.95 but since dE at 39.92 is 0.037, while at 39.98 it is 0.010, the end-point is nearer 39.92 than 39.95 and 39.93 is taken at the true end-point. If dE at 39.92 and 39.98 were reversed, the end-point would have been taken at 39.94. It is possible to obtain results which check to 0.05% by this method and the end-point, when titrating 0.1*N* HCl and NaOH coincides with that with phenolphthalein.

EXPERIMENTAL PROCEDURE.

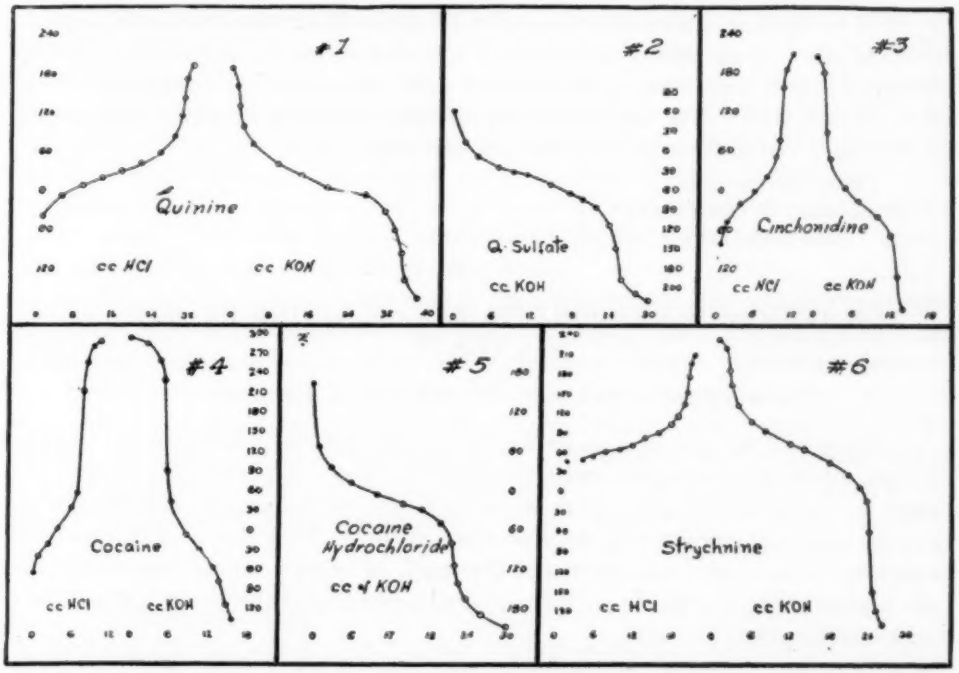
Apparatus.—Student potentiometer, lamp and scale galvanomter, Weston standard cell, two dry cells, and three-dial resistance box were set up in the usual way.[2] The saturated type of calomel and a plain platinum wire served as the electrodes. The latter was cleaned after every titration by dipping it into cleaning mixture (dichromate) for a few minutes and washing it thoroughly. The titration flask consisted of a 300-cc. tall beaker which was ground to fit tightly against a glass plate. The latter had six openings, one for the stirrer (electrically driven), the second for the calomel capillary tubing, the third for a T tube into which the platinum wire was fastened and which was used for passing CO_2 free air, the fourth and fifth openings were for two burettes, while the sixth opening was for washing down the sides of the beaker.

Preparation of Material.—Potassium hydroxide solution free from carbonates was prepared by determining the carbonate content, adding slight excess of barium hydroxide and then removing the excess barium by potassium sulphate. The potassium hydroxide was standardized against benzoic acid obtained from the Bureau of Standards. The hydrochloric acid was standardized against

[1] Furman, *J. Amer. Chem. Soc.*, 44, 2685–97 (1922); *Trans. Am. Electrochem. Soc.*, 43, 79–88 (1923).

[2] Popoff, Quantitative Analysis, P. Blakiston's & Son, 1924, p. 300.

the potassium hydroxide, using phenolphthalein as the indicator. The ordinary distilled water was redistilled from alkaline permanganate and kept in a paraffined bottle suitably protected from the CO_2 of the air. A good grade of alcohol was used and its acidity was previously determined by using phenolphthalein and standard KOH solution. The alkaloid, or the alkaloidal salt, was dissolved either in alcohol or in a mixture of alcohol and water, according to their solubilities. Carbon dioxide was expelled from the beaker and the alkaloids titrated either with 0.1 *N* HCl solution or with KOH solution, depending on whether alkaloids or alkaloidal salts were titrated. In case of the alkaloids, excess of acid was first added, then potassium hydroxide, until two breaks were obtained. Altogether there were three breaks, the first representing the conversion of alkaloid



The electrometric titration curves of alkaloids and their salts, using plain platinum wire in place of hydrogen electrode.

to the hydrochloride, the second representing the excess of acid added, and the third, the conversion of the salt into the free alkaloid.

Results and Their Interpretation.—Comparatively large breaks were obtained in titrating the alkaloids or their hydrochlorides or sulphates. At this time no special attempt has been made to obtain quantitative results except in some cases. In these cases, values obtained checked very closely with the theoretical, if the latter can be ascertained with any degree of certainty. In general, the results checked against themselves.

Alkaloid.	Cc. calculated.	Cc. found.
Strychnine	20.37	20.42
Cocaine HCl	21.82	21.72

Alkaloid.	Cc. calculated.	Cc. found.
Quinine Sulphate*	21.82	25.05
Quinine Sulphate*	21.82	24.99
Cinchonidine	10.18	10.10

* The calculations were made on the hydrated form. Upon heating to 115° the material lost in weight only about 3%, showing that we were not dealing with the hydrated form.

Curves are given for the following: Quinine, quinine sulphate, cocaine, cocaine hydrochloride, cinchonidine and strychnine. The curves were plotted by using cc. of acid or base as abscissae and millivolts as ordinates. Potential readings were taken about one-half minute after the addition of either acid or base.

This work is being continued using purer materials.

SUMMARY.

It is possible to titrate electrometrically alkaloids or their salts using a plain platinum wire. Two breaks are obtained when an excess of acid is added to the alkaloid, the first representing the excess of acid, the second the conversion of the salt to the alkaloid. The method is simpler and more rapid than that using either the hydrogen electrode or the quinhydrone electrode.

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THE ACTION OF RED PHOSPHORUS ON IODINE IN ORGANIC SOLVENTS.

BY RALPH N. TRAXLER AND FRANK E. E. GERMANN.

Gordon and Krantz in a paper entitled, "Adsorption of Iodine from Organic Solvents by Red Phosphorus and Charcoal"[1] set forth experimental results obtained by them for the adsorption of iodine from various organic solvents, using charcoal and red phosphorus as adsorbing agents. They have drawn various deductions from their own work and the work of others among which we note "when adsorption of iodine by red phosphorus is considered the absence of moisture is essential for correct results."

Adsorption isotherms are given by the authors using iodine and red phosphorus in carbon bisulphide and xylene at 30° C. and 45° C., and 30° C. and 50° C., respectively. Numerical data are given for the removal of iodine from solution by red phosphorus using 0.3, 0.2 and 0.1 Gm. of iodine and 1 Gm. dried red phosphorus in 50 cc. of toluene, xylene, chloroform, benzene, carbon tetrachloride and carbon bisulphide. The amount of adsorption is found to be quite high in all of the cases.

The present writers have investigated the action which takes place when red phosphorus is brought into contact with iodine dissolved in carbon bisulphide. The results obtained from these investigations lead to the conclusion that adsorption has little or nothing to do with the removal of the free iodine from that solvent when the solid substance used is red phosphorus.

When dry red phosphorus (as used by Gordon and Krantz) is added to a solution of iodine in purified carbon bisulphide at 22° C. under conditions which exclude

[1] Gordon and Krantz, THIS JOURNAL, Vol. 13, No. 7, p. 609–12.

moisture, and thoroughly agitated, the original violet color of the solution undergoes a change yielding a dark reddish brown solution. The depth of color depends upon the concentration of the original iodine solution. If the mixture is filtered after a few minutes of agitation and the filtrate evaporated red crystals are obtained. From the analysis of these crystals, their melting point and reaction products with water, they are found to be phosphorus triiodide. All of the iodine present in the solution is converted to phosphorus triiodide provided sufficient red phosphorus is added. It has been found that approximately 20 per cent of the red phosphorus is capable of reacting with iodine in carbon bisulphide solution.

From the above results it is quite clear as to what happens when moisture is present. The iodine and red phosphorus react just as they do when moisture is excluded, but the triiodide formed is decomposed by the water yielding hydrogen iodide and phosphorus acid. Both of these substances being quite insoluble in carbon bisulphide are precipitated out upon the remaining red phosphorus. The presence of these compounds on the red phosphorus may be shown by filtering out the solid material, washing thoroughly with carbon bisulphide and then treating with warm water. The resulting aqueous solution gives a strong test for hydrogen iodide and phosphorus acid. It is true that this process causes a considerable decrease in the intensity of the original iodine solution and may in fact under right conditions of concentration of iodine, phosphorus and water cause complete removal of the iodine color, but the disappearance of the iodine is not due to direct adsorption of the element by the red phosphorus.

A *chemical reaction not adsorption* is the phenomenon met with in considering the action of red phosphorus on iodine in carbon bisulphide. The writers have not investigated fully the action when xylene, toluene, benzene, chloroform and carbon tetrachloride are used as solvents, but from experiments performed it is evident that chemical action takes place to a marked extent in these cases also. It is a matter of surprise to the writers that the fact of chemical reaction between iodine and red phosphorus in dry carbon bisulphide should have been overlooked in the investigations of the other experimenters.

SUMMARY.

1—Gordon and Krantz have given experimental results to prove that red phosphorus adsorbs iodine from various organic solvents, including carbon bisulphide.

2—When red phosphorus and iodine are brought together in carbon bisulphide, a reaction takes place yielding phosphorus triiodide. The reaction is complete provided sufficient red phosphorus is present.

3—If moisture is present the iodide formed reacts with the water yielding hydrogen iodide and phosphorus acid both of which can later be removed from the remaining red phosphorus by washing with water.

4—The error in the work of the former experimenters rests in their failure to recognize that a chemical reaction not adsorption was the main factor in the removal of free iodine by red phosphorus from the solutions used.

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THE COMPOSITION OF SOME COMPLEX BISMUTH TARTRATES USED IN THE TREATMENT OF SYPHILIS.*

BY L. E. WARREN.

During the past several years a number of complex bismuth compounds have come into use in the treatment of syphilis. Their use in this disease originated in France and the majority of the pharmacological and clinical tests with these compounds have been carried out by French investigators. However, several reports have appeared in American journals.

Comprehensive reviews of the literature concerning the use of bismuth compounds in syphilotherapy[1] have appeared from time to time, so that they need not be repeated here and American chemical manufacturers have been producing some of the preparations used. The compounds commonly employed are stated to be potassium sodium bismuth tartrate, potassium bismuth tartrate and to a lesser extent, bismuth oleate, quinine bismuth iodide and finely divided metallic bismuth. Some tests have been carried out with bismuth citrate, bismuth trioxide and a few other bismuth compounds.

There is considerable confusion in the literature concerning the composition of the so-called bismuth tartrates used in the treatment of syphilis. Robert and Sauton,[2] who were the first to experiment with the bismuth tartrates in syphilis of animals, state that they used "sodium bismuth tartrate" which they prepared by the method published by Cowley.[3] The preparation which has been most used in France is claimed by Sazerac and Levaditi[4] to be potassium sodium bismuthotartrate, and to be prepared also by the method given by Cowley.[3] It is sold in an oily suspension under the name of Trepol. An examination of Cowley's paper reveals that the product which might be expected from the reaction which he described probably would not be potassium sodium bismuth tartrate, but previous to solution in sodium hydroxide, (which he directs as part of the process) would be more likely to be a basic bismuth tartrate. This will be discussed more fully later. The error of calling this product a "potassium sodium bismuth tartrate" has continued in the literature unchallenged.

Bismuth tartrate compounds appear to have been first described by Schwarzenberg in 1847.[5] Since then a great variety of compounds of bismuth with tartaric acid have been prepared. The composition of the finished products appears to vary with the method of manufacture, slight deviations in procedure apparently being responsible for considerable differences. Some of these compounds are briefly mentioned herewith. Following Schwarzenberg, Schneider[6] in 1853 prepared a variety of bismuth compounds including a basic bismuth tartrate.

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* From the Laboratory of the American Medical Association, Chicago, Ill.

[1] *Jour. A. M. Assoc.*, 82, 661 (1923); *Ibid.*, 83, 2087 (1924); *Am. Jour. Syph.*, 7, 352 (1923).

[2] A. E. Robert and B. Sauton, *Action du bismuth sur la spirallose des poules. Ann. Inst. Past.*, 30, 261 (1916).

[3] R. C. Cowley, Organic Salts of Bismuth with Alkalies. *Chem. & Drug*, 82, 212 (1913).

[4] R. Sazerac and C. Levaditi, *Action du bismuth sur la syphilis et sur la trypanosomiase du Nagana. Compt. rend. acad. sci.*, 172, 1391 (1920).

[5] A. Schwarzenberg, *Ueber eine Verbindung von Wismuthoxyd, Kali und Weinsteinsäure. Ann. Chem. Pharm.*, 61, 244 (1847).

[6] R. Schneider, *Untersuchungen über das Wismuth. Ann. Phys. Chem.*, 88, 45 (1853).

In 1866 Frisch[1] described a potassium bismuth tartrate to which he assigned the formula $K\,BiC_8H_2O_{12}$.

In 1894 Fischer and Grützner[2] prepared what they termed a neutral and an acid bismuth tratrate. The formulas ascribed to these compounds were respectively $C_4H_4O_6.2Bi\,(OH)_2$ and $Bi\,(OH)_2.C_4H_5O_6$.

Baundran has described a variety of compounds of tartaric acid with bismuth and potassium.[3]

Rosenheim and Vogelsang[4] discuss the constitution of potassium bismuth tartrate. The formula which they assign to the product is

$$\begin{array}{l} CHO\,(BiO).COOK \\ | \\ CHO\,(BiO).COO\,(BiO) \end{array} + 4H_2O$$

This compound should theoretically contain 67.15 per cent of bismuth and 4.21 per cent of potassium.

Greco and Muschietti[5] prepared potassium sodium bismuth tartrate for their use by treating bismuth oxide with a warm solution of tartaric acid adding an aqueous solution of potassium tartrate, after warming on the water bath for an hour, and finally neutralizing with an aqueous solution of sodium hydroxide, using phenolphthalein as indicator. The product was dried on porcelain plates and preserved in bottles out of the light. It was a white powder which contained 48 per cent of bismuth. These authors assign the formula KCOO.CHOH: CHOBiO. COONa to the compound.

Calcagno[6] disagrees with Greco and Muschietti and believes that the formula of the product should be $KCOO\,(CHOH)_2\,(COO)_2\,(BiO)_2\,(CHOH)_2\,COONa + H_2O$. The formula maintained by Calcagno theoretically should contain about 33.8 per cent of bismuth.

Greco[7] replied to Calcagno at some length and Calcagno[8] replied to Greco, each maintaining the correctness of his first contentions but without adding anything of consequence to the discussion.

Fabregue[9] prepared a bismuth tartrate by dissolving bismuth nitrate in acetic acid, adding an aqueous solution of sodium tartrate, washing the resultant, white precipitate with alcohol and drying it at 60°. The product was a white, microcrystalline powder; insoluble in water but soluble in ammonia water.

Only very few analyses of potassium sodium bismuth tartrate or similar com-

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[1] K. Frisch, *Ueber die Basicität der Weinsäure. Jour. prakt. Chem.*, 97, 278 (1866).

[2] B. Fischer and B. Grützner, *Ueber die Basicität der Weinsäure. Arch. Pharm.*, 232, 462 (1894).

[3] G. Baundran, *Étude sur les émétiques. Ann. chem. phys.*, 7, 19, 536 (1900).

[4] A. Rosenheim and W. Vogelsang, *Ueber einige Salze und Komplexsalze des Wismuts. Ztschr. f. anorg. Chem.*, 48, 205 (1906).

[5] N. V. Greco and A. H. Muschietti, *El. Bismuto en el tratamiento de la sífilis. Sem. Med.*, 28, 849 (1921).

[6] O. Calcagno, *A Propósito del Tartrobismutato Sodicopotássico. Sem. Med.*, 29, 5 (1922).

[7] *Tartrobismutato Sodicopotassico, Ibid.*, 64.

[8] *Tartrobismutato Sodicopotassico, Ibid.*, 95.

[9] M. Fabregue, *Sur une mode de préparation du citrate et du tartrate de bismuth. J. pharm. chim.* 7, 25, 341 (1922).

pounds have been reported. In 1922 Barthe[1] analyzed two commercial specimens of potassium, sodium bismuth tartrate. They were claimed to have the formula KOOC.CHO (BiO) CHOH. COONa. A compound having this formula theoretically contains 48.02 per cent of bismuth. Barthe found 48.04 and 63.41 per cent of bismuth respectively.

Klauder and Raiziss[2] state that they have examined several commercial samples of potassium sodium bismuth tartrate (brand names not given) and have found less than 52 per cent of bismuth. The potassium salt which Klauder employed clinically was found by Raiziss to contain about 62 per cent of bismuth. The potassium content was not determined.

Hopkins[3] prepared by the Cowley method[3] what he calls the "quadruple salt" *i. e.*, potassium sodium bismuth tartrate. His analyses (made by Dr. J. H. Mueller) showed 54.2 per cent of bismuth but neither sodium nor potassium were determined. This compound will be referred to again.

In making a study of some of the commercial bismuth salts used in the treatment of syphilis, the first experiments made in the Chemical Laboratory A. M. A. were undertaken with the view of gaining some information concerning the composition of the compound made by the Cowley process.[3] Accordingly a quantity of the salt was prepared by his method with the modification that the precipitate was dried at 100° instead of being dissolved in sodium hydroxide solution as Cowley directs. The yield from 70 Gm. of bismuth subnitrate was 81 Gm. of the dried product.

Cowley[3] prepared his complex bismuth salt as follows:

Bismuth subnitrate	70	Gm.
Potassium sodium tartrate	64.5	Gm.
Nitric acid (specific gravity, 1.430)	57	cc.
Sodium bicarbonate	57	Gm.

> Mix the nitric acid with an equal volume of water and dissolve the bismuth subnitrate in the mixture. Add the Rochelle salt dissolved in a little water and then the sodium bicarbonate also dissolved in water. Heat to expel carbon dioxide, filter and wash the precipitate until the filtrate no longer gives a test for nitrates. Lastly dissolve the precipitate in normal sodium hydroxide solution.

It appears probable that the precipitate produced by this reaction is a basic bismuth tartrate insoluble in water but soluble in sodium hydroxide solution. Cowley called his finished product "a solution of sodium bismuth-tartrate" and never at any time claimed it to be a potassium sodium bismuth tartrate. From the rather indefinite statements in the literature, it would seem probable that the active substance in Trepol is the basic bismuth tartrate as prepared by Cowley (before solution in sodium hydroxide) and that it is not a potassium sodium bismuth-tartrate as is claimed by the French manufacturers and clinicians. This (the insoluble salt) is the preparation used by Hopkins in this country[3] (mentioned

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[1] L. Barthe, *Le. tartrobismuthate de potassium et de sodium. Bull. Soc. pharm. Bord.*, 60, 20 (1922).

[2] J. V. Klauder and G. W. Raiziss, "Bismuth in the Treatment of Syphilis," *Arch. Derm. & Syph.*, 7, 721 (1923).

[3] J. V. Hopkins, "Bismuth in the Treatment of Syphilis." *Arch. Derm. & Syph.*, 7, 745 (1923).

earlier in this paper) but Hopkins calls his preparation the "quadruple salt," evidently believing that it contains both potassium and sodium. In a later paper Hopkins[1] refers to this compound as the "potassium sodium bismuth tartrate (soluble)" but gives no clew to his method of rendering the substance soluble.

Klauder[2] employed "the potassium salt because" he states "its chemical constitution is probably more definite, its preparation easier, and because its spirocheticidal action was regarded as efficient as the 'sodium potassium tartrobismuthate' which is probably a mixture of the potassium and sodium salts." This salt contained 62 per cent of bismuth.

LABORATORY SPECIMEN.

After being passed through a No. 30 sieve, the compound prepared in the laboratory by the Cowley[3] method was a white, finely granular, odorless powder. It was insoluble in water but soluble in dilute alkalies; soluble in acids without effervescence. On exposure to air for several days, a weighed sample of the salt gained about 2.3 per cent of its weight. The compound was submitted to analysis by the following method:

> *Bismuth.*—A weighed quantity of the bismuth salt was dissolved by agitation in weak ammonia water, the bismuth precipitated as bismuth sulphide from the warmed solution by hydrogen sulphide, the precipitate collected in a weighed Gooch crucible, washed successively with water, alcohol, ether, carbon disulphide, alcohol and ether in the order named, dried at 100° and weighed.

In three determinations the weight of the bismuth sulphide obtained corresponded to 60.64, 60.97 and 61.83 per cent of bismuth respectively.

> *Tartaric Acid.*—The filtrate from which the bismuth sulphide had been removed was slightly acidulated with hydrochloric acid, the solution evaporated to half its volume, the residue placed in a graduated flask and made up to volume. An aliquot portion of the solution was evaporated to about 25 cc., an excess of potassium chloride added, followed by 2 cc. of glacial acetic acid and, after stirring, two volumes of alcohol. After standing over night the precipitate (potassium bitartrate) was collected in a Gooch crucible and washed with 50 per cent alcohol until free from acetic acid. The crucible was then placed in a beaker containing hot water and the acidity titrated with normal sodium hydroxide, using phenolphthalein as indicator. The results were calculated to tartaric acid, $H_2C_4H_4O_6$.

The results of two determinations were respectively 32.0 per cent and 31.95 per cent of tartaric acid.

> *Potassium and Sodium.*—An aliquot portion of the diluted filtrate from the bismuth determination was evaporated to dryness in the presence of an excess of sulphuric acid, the residue heated to low redness, cooled, a fragment of ammonium carbonate added and the residue again heated. The mixture of potassium sulphate and sodium sulphate was weighed, its sulphate content determined as barium sulphate in the usual way and the relative proportions of potassium and sodium calculated by the method described in the reports of the Chemical Laboratory A. M. A. vol. 6, p. 44, 1913.

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[1] J. V. Hopkins, "Antisyphilitic Action of Bismuth." *Jour. Am. Med. Assoc.*, 83, 2087 (1924).

The results from two determinations were 0.34 per cent and 0.22 per cent for potassium and 0.34 per cent and 0.30 per cent for sodium.

A salt having the composition $K_2Na_2Bi_2O_{16}H_{12}O_{24}$[1] when dried should contain 34.95 per cent of bismuth, 9.85 per cent of potassium and 5.80 per cent of sodium. According to the Powers, Weightman, Rosengarten Co., this compound should be soluble in water. It is very evident that a salt insoluble in water and containing 61 per cent of bismuth and considerably less than 1 per cent of total potassium and sodium, cannot be correctly called a "potassium sodium bismuth tartrate." Therefore, it is concluded that the salt prepared by Cowley's method as modified in the A. M. A. Laboratory is not a potassium sodium bismuth tartrate, but is, essentially, a bismuth tartrate containing small amounts of potassium and sodium compounds as impurities. A comparison between the formula suggested by the Powers, Weightmann, Rosengarten Co., as well as the formulas for some other theoretical compounds, and the findings for the laboratory specimen are given in the following table:

TABLE I.—COMPARISON OF A LABORATORY SPECIMEN OF BISMUTH TARTRATE WITH THEORETICAL FORMULA.

Theory.	Potassium.	Sodium.	Bismuth.	Yield of tartaric acid.	Water of hydration.
$K\ NaBiC_4H_3O_7$	9.02	5.31	48.02	34.6	
$K\ NaBiC_8H_8O_{14} + H_2O$	6.34	3.73	33.75	48.7	2.92
$K_2Na_2Bi_2C_{16}H_{12}O_{24}$	9.85	5.80	34.95	50.4	
Laboratory Specimen	0.28	0.32	61.1	32.0	0

SPECIMEN FROM DERMATOLOGICAL RESEARCH LABORATORIES.

A specimen of potassium bismuth tartrate was received from the Dermatological Research Laboratories. It was a white, odorless powder, easily soluble in water. The aqueous solution had a very faintly alkaline reaction to litmus and gave precipitates with solutions of a number of alkaloidal salts and local anesthetics. The manufacturer stated that the compound was believed to have the composition approximately represented by the formula:

$$\begin{matrix} CH(OBiO).COOK \\ | \\ CH(OBiO).COOBiO \end{matrix} + 4H_2O$$

A compound having the formula indicated theoretically should contain 67.15 per cent of bismuth, 4.21 per cent of potassium and 7.75 per cent of water of hydration. Evidently this preparation is intended to correspond to that described by Rosenheim and Vogelsang.[10] Analysis by the method used in the examination of the specimen prepared in the laboratory, omitting the treatment with ammonia water to produce a solution, gave 65.73 per cent of bismuth, 5.26 per cent of potassium, 20.5 per cent of tartaric acid liberated and 4.53 per cent of water of hydration. The examination indicates that the composition of the product is essentially as claimed by the manufacturer. A comparison of the theoretical composition with the findings is shown in Table II:

[1] This formula was suggested by the Powers, Weightman, Rosengarten Co. It is again referred to in this paper.

TABLE II.—ANALYSIS OF A SPECIMEN OF POTASSIUM BISMUTH TARTRATE COMPARED WITH THE THEORETICAL FORMULA.

Theory for.	Potassium.	Bismuth.	Tartaric acid liberated.	Water of hydration.
$KBi_3C_4H_3O_9 + 4H_2O$	4.21	67.15	16.15	7.75
D. R. L. Specimen	5.26	65.73	20.50	4.53

Potassium bismuth tartrate D. R. L. was accepted by the Council on Pharmacy and Chemistry for inclusion with New and Nonofficial Remedies and a description of the product published.[1]

POWERS-WEIGHTMAN-ROSENGARTEN SPECIMEN.

A specimen of potassium sodium bismuth tartrate was submitted to the Council on Pharmacy and Chemistry by Powers-Weightman-Rosengarten Company. This product as manufactured by Poulenc Freres of Paris, had been sold abroad under the name of "Luatol." The American manufacturers (P. W. R.) stated that the product was believed to have the composition represented by the formula

$$[KNa(CO_2)_2]_3 . (CHOH)_4 . [CO_2(CHO)_2Bi]_2$$

The theoretical compositon of this compound may be seen by an examination of Table III. According to the submitted formula the product should contain no water of hydration. The product was a white, odorless powder, easily soluble in water to form a colorless solution having an alkaline reaction. Analysis of the salt by the methods previously described, omitting the treatment with ammonia water to produce solution, gave 8.74 per cent of potassium, 5.13 per cent of sodium, 31.41 per cent of bismuth and 12.53 per cent of loss on drying. The analysis shows that the product conforms reasonably closely with the theoretical formula if calculated as containing 9 molecules of water of hydration. A comparison of the findings and the theoretical formula is given in Table III.

TABLE III.—COMPARISON OF THE P. W. R. SPECIMEN OF POTASSIUM SODIUM BISMUTHO-TARTRATE WITH THEORETICAL FORMULAS.

Theory for.	Potassium.	Sodium.	Bismuth.	Water of hydration.
$K_3Na_3Bi_2C_{16}H_{12}O_{24}$	9.85	5.80	34.95	0
$K_3Na_3Bi_2C_{16}H_{12}O_{24} + 9H_2O$	8.67	5.10	30.75	11.98
P. W. R. Specimen	8.74	5.13	31.41	12.53

TREPOL.

Trepol is manufactured by Chenal, Douilhet & Co., of Paris. A specimen of Trepol in dry form was submitted to the Council on Pharmacy and Chemistry by the manufacturer's American agent, The Anglo-French Drug Co., of New York with the claim that it is "a tartro bismuthate of potassium and sodium containing 64 per cent of active bismuth." The formula claimed for the product is given herewith:

Na OOC—CHOH—CH (OBiO)—COOK 4 (BiO_2H).

A compound of the formula claimed should contain 74.4 per cent of bismuth, whereas the amount claimed by the manufacturer is "64 per cent of active bismuth."

[1] *Jour. A. M. A.*, 82, 209 (1924).

Since this formula contains but one tartrate radical, every bond of which is saturated without allowance for the four (BiO_2H) groups, the formula as submitted at first appeared untenable. The manufacturer explained that both of the acidic functions of the tartaric acid are blocked—one by potassium and the other by sodium. This combination is rendered insoluble by an excess of bismuth oxide so as to form a basic compound. This portion of the formula (BiO_2H) may be considered as bismuth hydroxide which has been partially dehydrated.

The specimen of Trepol examined was a pale yellowish white, finely granular, odorless powder. It was nearly insoluble in water, but soluble in acids with effervescense. On analysis, the preparation lost about 2.6 per cent by drying at 100°. No statement was made in the submission concerning the presence or absence of water hydration. Determinations indicated about 72 per cent of bismuth[1] instead of 64 per cent as claimed. The product contained only about 1.3 per cent of potassium and only about 0.9 per cent of sodium instead of 2.79 per cent and 1.65 per cent respectively as is required by the formula submitted. Further, Trepol contained calcium, equivalent to 3.3 per cent of calcium carbonate. The presence of this substance was not declared in the submission and there appears to be no justification for its presence.

The analytical findings are tabulated herewith together with the composition as claimed by the formula:

TABLE IV.—ANALYSIS OF TREPOL COMPARED WITH THE COMPOSITION CLAIMED.

	Theory for submitted formula. %	Found. %
Loss on drying	0	2.59
Bismuth	74.44	72.10
Potassium	2.79	1.31
Sodium	1.65	0.89
Calcium (equivalent to calcium carbonate)	0	3.32

The findings for Trepol were brought to the attention of the manufacturer, who replied that the percentage of bismuth as found by the American Medical Association Laboratory was correct. While the theory of the formula required 74 per cent of bismuth, the manufacturer stated that the actual content may vary between 70 and 74 per cent, the average being from 72 to 73 per cent. The firm promised that the claim of 64 per cent of bismuth as made in the Trepol literature would be changed. The manufacturer claimed that not a trace of calcium could possibly be present in Trepol as none had been used in the manufacture of the product. The manufacturer also challenged the Laboratory's findings for potassium and sodium, claiming that the quantities as shown by the submitted formula were those actually present.

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[1] The method for the determination of bismuth which was found to give the best results is as follows:

> Weigh about 1 Gm. of the material, suspend it in 800 cc. of water, add 2 Gm. of potassium chloride, warm the mixture to 80° and saturate with hydrogen sulphide. Keep the mixture warm for three hours, passing in more hydrogen sulphate if necessary, collect the precipitate in a tared Gooch crucible, wash it respectively with water, alcohol, ether, carbon disulphide, alcohol and ether, dry to constant weight at 100° and weigh.

$$Bi_2S_3 \times 0.8122 = Bi$$

In view of the fact that the Laboratory findings had been challenged, a reëxamination of the submitted specimen of Trepol was undertaken. The findings for the second analysis are given in Table V.

TABLE V.—SECOND ANALYSIS OF TREPOL.

Loss on Drying	2.31 per cent
Bismuth	72.69 per cent
Calcium	1.51 per cent
Potassium	1.63 per cent
Sodium	0.86 per cent
Carbon dioxide (CO_2)	4.79 per cent*

* The specimen contained about 8 per cent of water-soluble material. This was found to consist almost entirely of potassium sodium tartrate.

From the results of the analysis it was calculated that the composition of the submitted specimen of Trepol was probably essentially as follows:

Water of hydration	2.3 per cent
Calcium carbonate	3.7 per cent
Potassium sodium tartrate	8.0 per cent
Bismuth subcarbonate (U. S. P. IX)	36.7 per cent
Basic bismuth tartrate	49.3 per cent

In these calculations all of the calcium is assumed to be in combination with carbon-dioxide, and the balance of the carbon dioxide is assumed to be present in the form of bismuth subcarbonate having the approximate composition given in the U. S. Pharmacopœia. The balance of the bismuth is considered as a basic bismuth tartrate roughly approximating the composition claimed by Chenal, Douilhet & Co.

The findings for the second analysis of Trepol were submitted to the manufacturer. It was pointed out in the analytical report that the presence of calcium had been positively identified, notwithstanding the manufacturer's claim that not a trace of it could be present. The fact that the product contained nearly 5 per cent of carbon dioxide was mentioned and, as had been shown in the first analysis, the report emphasized further that the content of potassium and sodium was much lower than that indicated by the formula given by the manufacturer. The firm replied that their present analysis (made after the second report from the A. M. A. Chemical Laboratory had been received) confirmed the analysis of the A. M. A. chemists. They admitted the presence of calcium and of carbon dioxide but were unable to offer any satisfactory explanation for their presence.

The examination of Trepol reveals that its manufacturers, Chenal, Douilhet & Co., were ignorant of the composition of the product which they were selling. Its bismuth content was higher than claimed, it contained potassium sodium tartrate and calcium carbonate as impurities, and a considerable amount of other carbonate probably bismuth subcarbonate, was present.

METZ SPECIMEN.

A specimen said to be potassium sodium bismuth tartrate was received from the H. A. Metz laboratories. This substance was not a market product, but its analysis was included as a matter of record. The manufacturer stated that the specimen contained 32 per cent of bismuth but that no determinations of potassium or of sodium had been made.

The product was a cream colored, hygroscopic powder, easily soluble in water forming a colorless solution which had an alkaline reaction to litmus. Determinations of bismuth, potassium, sodium and tartrate radicle were made. The analytical results are tabulated herewith:

TABLE VI.—ANALYSIS OF THE METZ SPECIMEN.

Bismuth	34.09 per cent
Potassium	0.59 per cent
Sodium	15.31 per cent
Yield of tartaric acid	44.22 per cent

The great excess of sodium over potassium in the Metz specimen as compared with the Dermatalogical Research Laboratories specimen recorded earlier in this report, indicates that the product is not potassium sodium bismuth tartrate, but a sodium bismuth tartrate, containing small amounts of potassium salts.

SPECIMENS FROM SYNTHETIC DRUG CO., LTD.

A specimen said to be potassium sodium bismuth tartrate (insoluble) and a specimen stated to be the soluble form of the first compound were submitted to the Council on Pharmacy and Chemistry by the Synthetic Drug Co., Ltd., of Toronto. The second product was stated by the manufacturers to have been prepared by dissolving the insoluble form in sodium hydroxide. The insoluble product was a white, bulky, odorless powder, practically insoluble in water. The aqueous suspension of the material was neutral to litmus paper. The soluble form was a white, odorless powder, soluble in water to form a clear, colorless solution which had an alkaline reaction to litmus. The products were analyzed and the findings are tabulated herewith:

TABLE VII.—ANALYSIS OF SYNTHETIC DRUG CO. SPECIMENS.

Sample.	Bismuth.	Potassium.	Sodium.	Water of hydration.
Insoluble	62.08	0.35	0.49	3.06
Soluble	57.06	0.35	6.33	1.78

From the results of the analysis it is evident that the first specimen is not a potassium sodium bismuth tartrate, but is probably a basic bismuth tartrate containing small amounts of potassium and sodium as impurities. The second specimen (soluble) is a sodium bismuth tartrate containing traces of potassium salts as impurities. When the analysis was brought to the attention of the firm it accepted that its insoluble product was not a potassium sodium bismuth tartrate but was probably a bismuth tartrate and voluntarily decided to change the name.

SUMMARY.

The results of this examination reveal that there is considerable diversity in the composition of the bismuth tartrate compounds used in syphilotherapy. Some appear to be potassium sodium bismuth tartrate. These are relatively low in bismuth content, are soluble in water and their solutions have an alkaline reaction to litmus. Others are potassium bismuth tartrate. These also are relatively low in bismuth and are soluble in water. Still others appear to be sodium bismuth tartrate which contains small amounts of potassium salts. They are soluble in water

to form solutions which are slightly alkaline to litmus. Their bismuth content is low. Others appear for the most part to be basic bismuth tartrates of unknown constitution but containing small amounts of sodium and potassium salts probably as impurities. Their bismuth content is relatively high and they are insoluble in water.

It is a reflection on manufacturing pharmacy that the error of Sazerac and Levaditi in calling the Cowley product potassium sodium bismuth tartrate has been allowed to remain in the literature for several years without challenge, whereas proper chemical control by the makers of Trepol would have revealed the error before any of the first batch of material had been marketed. The fact that some of these compounds have been used in so-called scientific research without their composition being known to the users is a reflection on research.

THE DISINFECTANT ACTION AND TOXICITY OF TRICHLOR-ISOPROPYL ALCOHOL.*

BY J. W. HOWARD AND F. D. STIMPERT.

INTRODUCTION.

A number of compounds containing the trichlor-methyl group have proven of interest because of their physiological action. One of these, trichlor-isopropyl alcohol (often called "isoprol" for practical purposes) has been investigated only to a limited extent. Impens[1] has found it to be a hypnotic. He also states that 0.10% solution of isopral inhibits the fermenting action of the yeast cell.

It was the object of this investigation to add to this data a study of its disinfectant action and toxicity.

For this purpose we have compared it with isopropyl alcohol as this shows the effect of replacing a methyl by a tri-chlor-methyl group.

The toxicity of isopropyl alcohol has been studied by Macht[2] who found it to be less toxic than propyl alcohol but twice as toxic as ethyl alcohol. His study was made by intravenous injection in the cat. A different method and animal was used by us. Our study of its disinfectant action, however, is entirely new.

EXPERIMENTAL PART.

Preparation of Materials.—The isopropyl alcohol was obtained from the Research Laboratories of the Eastman Kodak Company.

The trichlor-isopropyl alcohol has previously been prepared by the combination of chloral and zinc dimethyl[3] or methyl magnesium salts.[4] The latter method

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* Contribution from the Departments of Chemistry and Biology of the State University of Montana.

[1] *Therapeutische Montashefte*, 17, 533 (1903).

[2] *J. Pharm. and Expt. Therapeutics*, 16, 1 (1921).

[3] Garzarolli-Thurnlockh, *Ann.*, 210, 77 (1881).

[4] Henry, *Compt. rend.*, 138, 205 (1904); *Rec. Trav. Chim.*, 24, 331 (1905); *Victoria Rec. trav. Chim.*, 24, 265 (1905).

was used in this study. The usual procedure of the Grignard reaction was used in combining 36 grams of methyl iodide, 6 grams of magnesium turnings and 37 grams of chloral. On completion of the reaction 2*N* HCl was added to the reaction mixture until the whole of the solid matter was dissolved. The ethereal layer was then removed, washed with $NaHCO_3$ solution, then with $NaHSO_3$ solution and again with $NaHCO_3$. It was dehydrated over K_2CO_3 and the ether removed by distillation and the alcohol distilled *in vacuo*. It boils at 85° C. at 240 mm. As the product was still somewhat dark, it was dissolved in ether and decolorized by boiling with animal charcoal. Yield 18 grams, m. p. = 49° C.

It has a camphor-like odor and sublimes quite readily at ordinary temperature.

In making up the solutions for the later tests it was found that it was soluble only *slightly* in excess of 2.5 grams in 100 cc. of water at 20° C.

It is readily soluble in acetone, chloroform, ether, benzene, carbon-bisulphide, methyl alcohol, 95% ethyl alcohol, and carbon tetrachloride.

Bactericidal Studies.—The solutions of the alcohols were so diluted as to make 5 cc. in each case. To each of these 5-cc. portions was added 0.1 cc. of a 24-hour broth culture of *Eberthella typi* (Hopkins) that had been transplanted on 2 successive days. At 2½-minute intervals a 5-mm. loop was transplanted from these solutions in 10 cc. of broth and incubated for 48 hours. An examination was made of the broth for positive and negative cultures by cloudiness. The results are summarized in the following tables:

TABLE I.

Trichlor-isopropyl alcohol.

Dilutions.	Time in minutes.					
	2½.	5.	7½.	10.	12½	15
1 to 50	—	—	—	—	—	—
1 to 60	+	—	—	—	—	—
1 to 70	+	+	+	+	—	—
1 to 80	+	+	+	+	+	+
1 to 90	+	+	+	+	+	+

TABLE II.

Isopropyl alcohol.

Dilutions.	Time in minutes.					
	2½.	5.	7½.	10.	12½.	15.
1 to 4.76	—	—	—	—	—	—
1 to 4.87	+	—	—	—	—	—
1 to 5.00	+	+	—	—	—	—
1 to 5.12	+	+	+	—	—	—
1 to 5.71	+	+	+	—	—	—
1 to 5.88	+	+	+	+	—	—
1 to 6.25	+	+	+	+	+	+
1 to 6.66	+	+	+	+	+	+

This would indicate that trichlor-isopropyl alcohol has about twelve times the disinfectant power of isopropyl alcohol.

Toxicity Studies.—For these determinations the alcohols were dissolved in physiological salt solution and injected subcutaneously in the abdominal region of guinea pigs.

Trichlor-isopropyl alcohol was used as a 2½% solution. Doses of 0.045 gram per 100 grams of body weight caused death within 3 hours in all cases. This compound is absorbed very rapidly and causes complete loss of motor control in 5 minutes.

Doses of 0.035 gram per 100 grams of body weight caused the same loss of motor control as the lethal dose, but in the majority of cases the animals recovered and showed normal activity in 5 to 6 hours.

Isopropyl alcohol was injected in volumes per body weight corresponding to those used with trichlor-isopropyl alcohol. The dilutions were varied from 2½% to 50%. In none of these cases was a lethal dose obtained. This shows clearly that trichlor-isopropyl alcohol is much more toxic than isopropyl alcohol.

SUMMARY.

Trichlor-isopropyl alcohol has both a greater disinfectant action and toxicity than isopropyl alcohol.

CULTIVATION OF THE OPIUM POPPY IN NORTH CAROLINA.*

BY E. V. HOWELL.

In 1905, I began the cultivation of poppies. In 1909 at the Los Angeles meeting of the AMERICAN PHARMACEUTICAL ASSOCIATION I presented an historical sketch of opium production, with items of interest from my experiments. From translation of the work of Dioscorides about A.D. 77 and other authors, I found that the μηκώνιον of Theophrastus was evidently an extract of the whole plant, while Dioscorides distinguishes μηκώνειον, described as an extract of the entire herb, from οπος, the more active juice of the capsules. I found also that the ancients knew in a crude way almost as much as we now know of the plant. They stated that the young plants were harmless and could be eaten as a salad, the seeds were used in making bread (as to-day); could be fed to poultry, furnished oil, etc.

Dioscorides stated that the capsules had to be scarified to produce opium; methods were used to prevent the instruments from cutting too deep thus allowing internal bleeding. Discussion as to whether transverse or longitudinal cutting was the better was noticed. The plants were to be cut "advancing backwards lest the juice get on your raiment." The uses of the juice, the leaves and capsules, in various forms were enumerated.

Since 1909, I have grown annually poppies from the same strain of seed. I started with both white and black seeded varieties of the *Papaver somniferum*. The black variety evidently is the hardier as it has crowded out the white. In North Carolina, the poppy once started will seed itself, the problem becoming one of thinning or transplanting. Poppies should be sown in the fall, and may be sown by simply scattering on the top of snow, in the winter. They will mature the following spring. In transplanting, it is necessary that it should be done in cold weather, early in the spring. The poppy will survive a very considerable amount of cold, or even freezing.

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* Scientific Section, A. PH. A., Buffalo meeting, 1924.

To successfully plant and harvest an acre of poppies would be no more tedious, for instance, than to complete an acre of tobacco. Tobacco is planted in early spring in seed beds, covered with cloth. Each plant is transferred to fields and set out in rows. The leaves are gathered by hand, assorted, tied in bundles, hung on sticks, placed in barns and cured by heat. Further assortment by hand is resorted to before marketing, which is usually done in large warehouses where bidders inspect the various piles, some weighing less than 100 pounds, others more. Further stemming, cleaning, curing and flavoring methods are used. In earlier experiments I obtained opium by incision of the capsules, which, after 10 days of air-drying, gave opium of a 6 to 7 per cent morphine content. The capsules are numerous but not so large as from the oriental poppies. No attempt was made to increase the size by restriction of the number of capsules per plant, in fact an increase of capsules for seed production was looked upon as desirable.

Every possible effort to express, crush, or extract the juice after crushing and thus obtain opium, avoiding the tedious and expensive labor item of bleeding the capsules, was tried without success. The addition of ferments and the use of oxidizing agents were fruitless. Nature's mystic method, retaliation for man's wounding the plant, was the only way I found of producing opium—scarifying with knives padded to incise very slightly, a white milk juice exudes, which remaining on the capsule hardens and turns brown; this can be scraped off after twenty-four hours. In this time twelve to eighteen alkaloids and an acid or two are developed by the plant.

In the study of the uses and abuses of plants, we see this useful plant—furnishing the best of drying oils, one that has preserved for us, in the realm of art, the wonderful work of the master painters—stung, by the inhumanity of man, to the production of morphine. The subsequent introduction of the evils of our opium situation is strictly the work of man. That opium can be produced in North Carolina is certain; that also the seed will mature after incising the capsules has been demonstrated. Just what is the effect on the oil content of the seed, after bleeding, I haven't had time to ascertain. Continuous planting has developed a hardy strain, with an increase of the number of capsules, the highest this year being forty from one plant. The following items from poppies grown are interesting.

Plants.	Capsules.	Seed.
1	13	579 grains
2	16	418 grains
1	40	561 grains
2	26	287 grains
1	9	155 grains

This average collection of seven plants, with 104 capsules, yielded 2000 grains of seed—an average of about 15 capsules per plant, and about 20 grains of seed per capsule.

If plants were set out two feet apart the 10,890 plants per acre would yield, calculating 2000 grains of seed from seven plants, 443 pounds of seed. It is possible in gardens to grow plants one foot apart. This would give 48,560 plants which would yield 1700 pounds of seed per acre. The parts of the poppy that are quoted at wholesale in large quantities are as follows: Seed, Dutch, 10 cents per pound,

German, 9 cents; poppy flowers, red, 25 to 33 cents per pound; poppy oil, 2.20 to 3.20 per gallon (*Oil, Paint and Drug Reporter*, January, 1924). At these prices then, seed valued at $45.00 to $175.00 per acre could be produced; the value of the remainder of the plant for paper making is yet problematical. It is worth while to investigate some crop that would be profitable, that could be introduced where the more valuable crop is menaced, as for instance cotton in the boll weevil districts, where poppy cultivation would aid in elimination of this pest.

It is interesting to note that poppy heads and flowers are used medicinally in many countries, although these are not popular in America. For instance, in Great Britain they use the decoction of poppy capsules, the extract of the capsules, the liquid extract of the capsules and the syrup of the capsules. We know that frequently opium gives better results than any one or two of its alkaloids.

The British have this idea in their papaveretum, which is the hydrochlorides of the whole of the alkaloidal constituents of opium. This is recommended as preferable to morphine for hypodermic injection, having a better sedative and soporific action, with milder after effects. With the omission of narcotine from the hydrochlorides of the total alkaloids, pleistopon is used in England and, similarly, with morphine eliminated a preparation called opon is prepared, and the glycerophosphates of all of the alkaloids is called glycopon. There is some alkaloidal activity in the capsules but after experiments I don't believe they would run as high as one-half of one per cent of morphine so that preparations of the capsules are limited to fomentations, for use in dental abscesses, for a vehicle for urethral injections and as a mild sedative in cough remedies.

The conclusions drawn from the experiments are briefly that the opium poppy is hardy and easily grown in North Carolina; that it will produce opium in this climate. Again, that it is worth while to consider it as a crop, for the seed alone, which could be made to yield from $45 to $175 per acre in competition with the wholesale price, in large quantities, of imported seed quoted at 10 cents per pound, not to speak of the encouragement of a tariff, if it were grown. That the use of the capsules with their small per cent of morphine, after the stimulation of heroin, would furnish material for cough remedies and mild sedative preparations, not subject to the restrictions of our narcotic laws.

ABSTRACT OF DISCUSSION.

Arno Viehoever: I am not really familiar at present with conditions, especially with the work that has been done on the poppy, but my recollection, hazy as it is, seems to be that the work that has been done has definitely indicated the presence of alkaloids, such as morphine, in the poppy. I certainly would like to have some further information.

E. A. Ruddiman: Between 1890 and 1900 at Nashville, Tenn., I was given the dry juice of the plant for examination. I assayed the dried extract by the then U. S. P. method and obtained in the neighborhood of 7 per cent morphine, apparently. Later, I found that what I had precipitated as morphine was calcium carbonate. I could not get a satisfactory test for morphine. In later experiments with plants from imported seeds, on scarifying the capsules and drying the juice, I failed to detect, satisfactorily, any amount of morphine.

Arno Viehoever: I want to call attention to the fact that one might gather an erroneous conclusion in believing that if the seed did not contain any alkaloid the plant would not. The hollyhock of South Carolina has been held to contain caffeine. The seed does not contain, even by using very fine measurements, any trace of it, and yet the leaf of the plant contains up to 2 per cent. All such facts should be taken into consideration.

THE EFFECT OF AGE ON THE ACTIVITY OF TINCTURE OF DIGITALIS.

BY CHAS. C. HASKELL.

Numerous investigations have been carried out in the attempt to determine the effect of age on the potency of digitalis. The results of the earlier studies, in which frogs were used as test animals, were in agreement, indicating a definite loss in the strength of liquid digitalis preparations in even short periods of time. On the other hand, employing the cat method, Hatcher and Eggleston (1) came to the conclusion that deterioration of the ticture of digitalis occurred to only a negligible extent in several years. Experiments carried out on cats in this laboratory led us to the same conclusion; where a sufficient number of animals was used in the initial and later assays, there was no evidence of deterioration to a significant extent in the course of five years (2). To what are these different results attributable? The most plausible explanation, advanced by Hatcher several years ago (1), is that the tincture of digitalis undergoes some change which interferes with its absorbability from the lymph sac of the frog but does not materially alter its potency after entrance into the circulation. Naturally, this raises the question whether a similar decrease in absorbability from the mammalian alimentary tract does not take place with the lapse of time; a question of the greatest importance in the selection of a method for assaying digitalis preparations. If, with age, a tincture of digitalis becomes less absorbable from the human alimentary tract, it is obvious that this preparation would prove less efficacious when administered orally, and the assay by the cat method, where the drug is injected intravenously, would give misleading figures. On the other hand, the employment of the frog method for the assay of an old preparation intended for intravenous injection might lead to disaster, since it would indicate too low potency for the preparation.

In the winter of 1922, there were available three tinctures of digitalis which seemed well suited for the investigation of his question. One of these tinctures, No. 36, had been percolated in the winter of 1916 from leaf grown in the vicinty of Richmond. In the early part of 1917, it was assayed by the one-hour frog method and by the cat method of Hatcher and Bordy. By both methods, the preparation seemed unusually active; unfortunately, the frogs were not standardized with ouabain, but the animals were in good condition and the assay was carried out at temperatures from 18° to 22° C. In the spring of 1922, the assays by both methods were repeated; the result by the frog method indicating a considerable loss in activity; while the slight differences in the figures obtained at the initial and later assays on cats is well within the limit of error. The results of these assays are given in Table I.

TABLE I.—ASSAYS OF TINCTURE OF DIGITALIS 36 AT FIVE-YEAR INTERVALS.

Date of Assay.	Cat Assay mg. × Kg.	Frog Assay cc. × Gm.
1917	42.2	0.0015
1922	41.1	0.0035

The second tincture was percolated in the spring of 1922; Virginia-grown leaf being used for its preparation also; the third tincture was percolated at the same time from leaf procured from a commercial grower. These two tinctures were

numbered 45 and Z-1 respectively. The assays of all three of these tinctures, carried out in the spring of 1922, are given in Table II.

TABLE II.—ASSAYS OF TINCTURES Z-1, 36, AND 45 IN SPRING OF 1922.

No. of Tr.	Cat. assay mg. × Kg.	Cat ratio.	Frog assay cc. × Gm.	Frog ratio.
Z-1	38.44	100.0	0.0025	100.0
36	41.10	93.6	0.0035	71.4
45	74.19	51.8	0.0035	71.4

It is apparent that Z-1 is the strongest preparation by both assay methods; by the cat method, 36 is practically as strong as Z-1; and both of these tinctures are almost double the strength of 45. By the frog method, the old tincture, 36, appears to be decidedly weaker than Z-1, and is just equal in potency to 45.

The first absorption experiments were carried out on cats, utilizing the procedure suggested by Hatcher. The animals were deprived of food for twelve hours and were then given 1 cc. of the selected tincture per kilogram body weight orally, the tincture having been diluted with nine parts of water. In exactly one hour after administration of the tincture, 0.2 Gm. of chloretone per kilogram was injected intraperitoneally, the drug being dissolved in cotton-seed oil. Within thirty to forty minutes, the majority of the animals were sufficiently anesthetized to permit of the operative procedures incident to the insertion of the cannula into the femoral vein; occasionally, it was necessary to supplement the chloretone with a little ether. In exactly two hours after administration of the tincture, the intravenous injection of ouabain, 1 to 100,000 in saline, was commenced, the rate of injection being 1 cc. every two and a half minutes until the death of the animals. Assuming that the average fatal dose of ouabain is 0.1 mg. per kilogram, it is obvious that the difference between this amount and that actually required to cause death may be ascribed to the digitalis which has been absorbed from the alimentary canal. The amount of absorption may be expressed as a fraction of a lethal dose, and, since the same volume of each preparation was administered orally, the proportion of a lethal dose would indicate the potency of the preparation by this method of administration.

There are several possible sources of error in such experiments; individual difference in absorbing power; individual variations in resistance to the digitalis after absorption; and, finally, individual differences in resistance to the injected ouabain. It is to be expected, therefore, that the results in the different cats would show divergent figures for absorption; an expectation which was fulfilled. Thus, of the 23 cats used with 36, the indicated absorption varied from zero to 62% of a lethal dose; of the same number of animals used for 45, from zero to 54% of a lethal dose; of the ten cats used for Z-1, from zero to 51%. Nevertheless, the averages for all the cats seem clearly to show that the fresh tinctures are more readily absorbed from the intestine of the cat than is the case with the old tincture. The averages are given in Table III.

TABLE III.—ABSORPTION OF TINCTURES Z-1, 36, AND 45 FROM THE INTESTINE OF THE CAT.

No. of Tr.	No. of cats used.	Per cent of L. D. absorbed.
Z-1	10	30.0
36	23	20.6
45	23	19.4

It is interesting to compare the relative potency of the three tinctures, as judged by the different methods: frog assay; cat assay; and absorption from the intestine of the cat. This is done in Table IV.

TABLE IV.—RELATIVE POTENCY OF Z-1, 36, AND 45 BY DIFFERENT METHODS.

No. of Tr.	Frog ratio.	Cat ratio.	Absorption ratio.
Z-1	100.0	100.0	100.0
36	71.4	93.6	68.6
45	71.4	51.8	64.6

In spite of the many sources of error, there is a rather remarkable agreement between the results of the frog assay and the absorbability from the intestine of the cat; these being quite at variance with the figures of the cat assay.

Hatcher has stated that absorption from the cat's alimentary tract parallels that from the human intestine. It seemed desirable, however, to secure additional evidence regarding the loss of absorbability undergone by the tincture of digitalis with the passage of time; in order to do this the absorbability of a fresh and of an old tincture from the intestine of dogs was investigated. The same procedure was employed as in the case of the cats; the dogs were starved twelve hours; were then given 1 cc. of the tincture per kilogram body weight orally; in one hour, they received 0.2 Gm. chloretone per kilogram body weight intraperitoneally; and the intravenous injection of ouabain was commenced exactly two hours after the oral administration of the tincture. Only two preparations were used in these experiments; 36 (old) and 45 (fresh). The results of these tests are given in Table V; the amount of absorption being expressed as a fraction of the lethal dose; the lethal dose of ouabain being placed at 0.137 mg. per kilogram.

TABLE V.—ABSORPTION OF TINCTURES 36 AND 45 FROM INTESTINE OF DOG.

No. of Tr.	No. of dogs used.	Per cent of fatal dose absorbed.
36	12	24.0
45	11	27.4

Here, as in the case of the cats, the amount of absorption indicated is about equal for the two tinctures. Indeed, although the cat method leads one to infer that 36 is almost twice as strong as 45, the latter is absorbed in greater amount in the two-hour interval. The individual variations seen in the case of the dogs were much less evident than in the case of the cats; of the twelve dogs used for 36, the indicated absorption varied from 8% to 40% of a lethal dose; of the eleven used for 45, from zero to 55% of a lethal dose; the remaining dogs in the two series ran quite close to the averages given.

It is, of course, most desirable that this question should be studied clinically. However probable it is that absorption of tincture of digitalis from the human alimentary tract parallels that from the intestine of the frog and of the cat, it has not been definitely proved. If clinical observations do show that age decreases the absorbability of tincture of digitalis from the human gastro-intestinal tract to the same extent as it does absorbability from the lymph sac of the frog, a feature of the frog method which has been looked upon only as a disadvantage must be considered as very definitely in its favor.

The absorbability of tincture of digitalis from the alimentary tract may be influenced by more than one factor; and there is no justification for the assumption that absorption of this preparation from the frog's lymph sac always parallels that from the mammalian intestine. Certainly, however, it seems proper to conclude that the change in tincture of digitalis which occurs with age and which lessens the absorbability of this preparation from the lymph sac of the frog affects the absorbability from the intestine of the cat and of the dog to practically the same extent; and, consequently, the frog assay method more truly indicates the potency of such preparations which are intended for oral administration.

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STUDIES IN THE GENUS MENTHA. VI. THE VOLATILE OIL OF A STRAIN OF JAPANESE PEPPERMINT GROWN BY THE WISCONSIN PHARMACEUTICAL EXPERIMENT STATION, AT MADISON.[1]

BY G. C. JENISON[2] AND R. E. KREMERS.[3]

The Japanese oil of peppermint holds a unique place in the world's commerce because of the comparative ease with which crystalline l-menthol is obtained from it. Accordingly, attempts have been made from time to time to introduce strains of Japanese plants into other countries. These attempts have been by no means uniformly successful, and taken in conjunction with what is reported concerning the culture of mints in Japan itself, have only obscured the situation both botanically and economically, instead of clarifying it. The propagation of the strain under present consideration belongs in the category of those failures that have resulted in oils "deficient in menthol." Usually the matter has been dropped at this point. The further investigation of this "deficiency in menthol," especially as to what took the place of menthol, has led in this instance to some very interesting results. The theoretical consideration of these results is left to a later paper. For the moment only the actual examination of the oil will be discussed.

Material.—The strain of Japanese peppermint which yielded the oil for these investigations has been grown for some years by the Wisconsin Pharmaceutical Experiment Station in its gardens in the vicinity of Madison, Wisconsin.[4] The

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[1] Contribution from the Wisconsin Pharmaceutical Experiment Station, Madison. Based in part on a section of the Master's Thesis submitted by G. C. Jenison to the University of Wisconsin, June, 1923.

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[4] The Station gardens are under the immediate supervision of Prof. W. O. Richtmann. The authors gratefully acknowledge their indebtedness to him for the large amount of material made available by his efforts.

original plants were obtained in 1913 from the Arlington Experimental Gardens of the Bureau of Plant Industry as progeny of plants imported from Japan. The plants constituting this importation were supposed to be *Mentha arvensis* var. *piperescens*.

The propagation at the Madison gardens has been by root-cuttings according to the usual procedure of mint culture. The distillation of the oil, including the cohobation, was done in the usual way. Although it had been known almost from the start that the oil produced by this particular strain was poor in menthol, there was no record of an examination to ascertain its components. This was all the more desirable after the preliminary study of the cohobated oil[1] had shown a noteworthy variation from the cohobated oil of American peppermint, although both had been produced from neighboring plants.

This report includes the three crops of 1920 to 1922 inclusive.

PHYSICAL CONSTANTS AND ASSAY.

Year	1920: original	1921: original	1921: cohobated	1922: original	1922: cohobated
Density	0.923 at 25°C.	0.925 at 24°C.	0.932 at 24°C.	0.924 at 22°C.	0.924 at 20°C.
Index of refraction	1.4845 at 25°C.	1.4846 at 24°C.	1.4838 at 24°C.	1.484 at 22°C.	1.483 at 20°C.
Optical rotation	———	+15.14° at 22°C.	+19.1° at 22°C.	+15.4° at 21°C.	+19.8° at 21°C.
Pulegone	86 p. c.	88 p. c.	88 p. c.	86 p. c.	84 p. c.
Ester				6.6 p. c.	
Alcohol				12.1 p. c.	
Total alcohol				17.3 p. c.	
Regenerated pulegone					
B. p.	103–05°C. at 12 mm.	110–12° at 21 mm.		115–20° at 27 mm.	110–12° at 19 mm.
d.	0.933 at 26°C.	0.934 at 25°C.		0.9229 at 25°C.	0.9312 at 22°C.
n.	1.4850	1.4842		1.4833	1.4862
				+22.15°	+21.4°
Semicarbazone		m. p. 168–69°C.		m. p. 171.5°C.	m. p. 168°C.

Preliminary Treatment and Fractionation.—The oils produced in these years show a remarkable uniformity as evidenced by the preceding table. The chemical examination reflects the same fact by the similarity of the procedure developed for each oil. Hence the following details, taken from the examination of the 1922 oil, describe accurately the work of the other years. Because more material was at hand, this oil was also studied more exhaustively.

A liter of unrectified 1922 oil was thoroughly extracted successively with sodium bicarbonate solution and with sodium bisulfite solution. The traces of acids and aldehydes thus removed were not identified. The oil was then rectified by steam distillation, dried over anhydrous sodium sulfate, and fractionated repeatedly. The data for the final series of fractions are given in the table on the following page.

Thus it is evident that the oil is largely composed of a few fractions whose physical constants suggest the presence of pulegone. This substance was further purified through reactions with sodium bisulphite. This was accomplished in two

[1] JOUR. A. PH. A., October, 1921, p. 834.

ways. First by the Baeyer technique of shaking together an hydroalcoholic mixture of the components until the reaction was complete. The second consisted in the adaptation to larger quantities of the neutral sulphite assay for pulegone. The results were identical.

B. p.	Vol.	d_{25}.	n_{25}.	$[\alpha]_{25}$.
155–60°C. at 750 mm.	56 cc.		1.4609	
160–70°	18		1.4662	
170–86°	6		1.4748	
105–10° at 27 mm.	26	0.919	1.4805	+ 9.89°
110–15°	14		1.4805	
115–20°	590	0.9229	1.4833	+22.15°
120–25°	40	0.9372	1.4839	+22.50°
125–30°	37	0.9383	1.4843	+22.45°
130–35°	24		1.4850	+18.52°
135°+	76			
	887			

Pulegone regenerated from addition product prepared according to Baeyer:

B. $p._{12\ mm.}$ = 103–05° C.; d_{26} = 0.933; $n_{26\,D}$ = 1.485; $[\alpha]_{25}$ = +22.15°.

Pulegone regenerated from addition product prepared with neutral sulphite:

B. $p._{19\ mm.}$ = 110–12° C.; d_{24} = 0.931; $n_{24\,D}$ = 1.481; $[\alpha]_{24}$ = +21.9°.

Semicarbazone: M. p. = 171.5° C. Hydroxylamine addition compd.:

M. p. = 156–57° C.

Further proof that the ketone behaves as pulegone was obtained by oxidation and hydrolysis. A 50-Gm. sample of pulegone fraction was oxidized according to Semmler[1] with potassium permanganate. A good yield of crude oxidation product was obtained, which yielded a small quantity of perfectly pure β-methyl adipic acid: M. p. 85° C. recrystallized from hot benzol.

A 70-cc. sample was hydrolyzed by boiling with an equal volume of formic acid.[2] The reaction mixture was freed of acid with sodium carbonate and the oil twice fractionated. The constants of the principal fraction were:

B. p. 165–75° C.; d_{22} = 0.919; n_D = 1.447; α_D = +12.65°.
Wallach records:[3] B. p. 169° C.; d = 0.915; n_D = 1.4456.

In addition to pulegone, the only other compound definitely identified in the oil was limonene. By following the technique of Graybeal and Kremers fraction b. p. 170–86° yielded a nitroso chloride which in turn gave a nitrolbenzylamine base, m. p. 92–93° C. The presence of pinene in the lowest fraction was not conclusively established.

Both menthol and menthone were specially sought for. If they were present at all, their quantity is too small for detection in a liter of oil. The assay of the

[1] F. W. Semmler, *Ber.*, 25, 3515 (1892).
[2] O. Wallach, *Ann.*, 289, 338 (1896).
[3] *Ibid.*

unrectified oil indicated an appreciable saponification value after acetylization. It was also found that fraction 8, b. $p_{.27}$ = 125–30°, had a high saponification value. Fractions 7, 8, and 9 were thereupon united, freed of pulegone by the neutral sulphite method, rectified, saponified, and again rectified. The resultant oil was found to distil over a wide range, 160–240° C. Each significant fraction was treated with phenylisocyanate. However, only diphenyl urea resulted. With different materials attempts were made to freeze out menthol, with negative results.

SUMMARY.

The strain of a so-called Japanese peppermint which is being cultivated at the Wisconsin Pharmaceutical Experiment Station has been shown to yield a volatile oil containing largely *d*-pulegone. *L*-limonene is the only other constituent of the oil definitely identified. Careful search for both menthone and menthol has so far failed to reveal the presence of either compound.

The study of the non-pulegone fractions of this oil is being continued with much larger quantities of oil.

MEDICINAL PLANTS OF THE AZTECS WHICH ARE STILL IN COMMON USE IN MEXICO.*

BY CHARLES BRAUBACH.

When the Spanish conquerors first arrived in Mexico in the year 1521, they were surprised to find there a number of the most beautifiul botanical gardens, as for example in Texcoco; that of Chapultepec and the royal gardens of Montezuma. The gardens of Chapultepec are now the magnificent park of the same name in the city of Mexico, and known to all visitors, with its giant conifer trees, called *Ahuehuetes*, an Aztec word, and surrounding the castle of Chapultepec, the residence of the presidents of Mexico. Many of these big trees are said to be about one thousands years old and are arranged in lanes, through which footwalks are leading.

According to the old Spanish historians, these botanical gardens of the Aztecs were in existence long before the discovery of the American continent; the oldest is stated to be that of the king of Texcoco, whose name was Netzahualcoyotl. This king had a large array of live plants and kept in his palace a collection of such desiccated plants from other regions as would not grow in the soil of his gardens, thus he became the founder of a museum of natural history. According to "Prescott's History of the Conquest of Mexico," Book VI, Chapter II, the gardens of Texcoco were arranged in such a manner and with such taste that one could safely say there was nothing equal in Europe at that time. In these botanical gardens a classification and arrangement of the plants could be observed: trees, medicinal plants, plants bearing flowers with fragrant odor and plants yielding dyes, with subdivisions of those resembling each other. One of the old Spanish monks by the name of Moxó expressed his opinion that the European botanists followed the

* Scientific Section A. PH. A., Buffalo meeting, 1924.

footsteps of the Aztec herbalists, using their ideas as guides in botanical classification, likewise paying special attention to the flowers, fruits and leaves. Entirely original was the classification of medicinal plants based on their respective therapeutic properties, uniting them into groups, according to their action, and giving them names which clearly express their therapeutic use. To the plant which alleviates headache they gave the name medicine for the head; the plant causing sleep they called medicine for sleep; the plant which is good for the chest they gave the corresponding name. These Aztec names for medicinal plants, as well as many others, are still in general use in Mexico. The names are mostly compound words and derivatives, coined, as we would say, and frequently quite lengthy.

For example, we have here the *Talauma macrocarpa, zucc. Yoloxochitl: yolo* in Aztec means heart and *xóchitl* means flower, therefore this flower is good for the heart and, as a matter of fact, its action is similar to that of digitalis. The terms of classification used by the Aztecs were so adequate in expressing important characters of certain plants that we find some of these terms in our present botanical nomenclature, as for example the word *Oceloxóchitl*, meaning flower of the tigers, is found in the genus *Tigridia*. Their family of *Ayotli* corresponds to our *cucurbitaceae*, which they had divided into two classes, based on the form and quality of the fruits, edible and non-edible. The classification of the family of *Metl* was so well conceived that Linné accepted it practically as it was, giving it the name of *Agaves*. The family of *Ocotl* comprised trees with resinous wood, now the *Coniferae;* one of its subdivisons were the *Liquidambars*, from which they obtained the *Xochiocotzotl*, our present Styrax, which they already knew to employ as a perfume, used by the women folk, and incense for their *Teocalli* (places of worship). *Teo* means God and *calli* house.

As we see, the names given by the old Mexican Indians to their medicinal plants were by no means arbitrary, but quite expressive and probably correct in their relation to the plant in the majority of cases. Their language, rich in words and allowing inexhaustible combinations, permitted them with ease to contract several words to one compound word which could express a number of properties.

Many of the Spanish historians of the time of the conquest report that the Aztec doctors possessed a high degree of knowledge of the medicinal flora of their country and used it to make remarkable cures. The origin of this knowledge they trace back to the Toltec race of which P. Sahagún says in his *Historia General de las Cosas de Nueva España* (General History of the affairs of New Spain): "They had much experience and great knowledge, inasmuch as they knew the qualities and virtues of the plants, they were able to distinguish those which were edible from those which were harmful or poisonous and from this knowledge we derived the benefit of knowing to-day how we can alleviate or cure diseases. Their foremost doctors, he continues, were named *Oxomoco, Tlaltetecuin, Cipactonatl and Xochicaoaco;* they had an expert knowledge of the plants, they were the first to use them and the first herbalist doctors."

The botanical knowledge acquired by the old Mexicans was the logical consequence of their nomadic life, being continuously in contact with nature, and the necessities of maintenance caused them to investigate and distinguish alimentary plants from those adapted for other purposes.

The plants of the fields they divided into two groups: *Quilitl*, which served

as food for men, and *Niazatlaqualli*, which were adapted to feed the animals. Then followed other divisions, following quite scientific and practical lines, corresponding more or less to the present families, these again being subdivided in species and varieties.

No doubt the classifications, nomenclature and grouping of the plants by the Aztecs principally according to their properties were the most advanced and superior to that used at that time by the nations of the old world, who knew only two classifications of plants: trees and herbs, arranging them often alphabetically and following more or less the Greek philosophers Theophrastus and Dioscorides, who were the best known botanists of their age. Even though the Aztec classification was far from being perfect, according to our modern ideas, it deserves credit inasmuch as they had devised means by which the various plants were grouped and named methodically without having themselves knowledge of physiology or organography and before there was anything similar available in the old world. We also must give them credit that they have discovered the medicinal value of a goodly number of plants and determined their therapeutic action, discoveries which up to the present day have contributed to the relief or cure of the sick, since many of their medicinal plants are still generally employed in Mexico.

It is only natural to surmise that they conceded also superstitious and illusory virtues to certain medicinal plants, just as is done here and there in these enlightened times with some drugs, for example with *Asa Foetida*, which by burning in the stable is supposed to cure sick cattle by driving out the devil through its bad odor.

I have not investigated which Mexican drugs, used everywhere nowadays, for example, Sarsaparilla, Jalapa, etc., can be traced to the Aztecs. The collection which I am presenting here[1] contains principally such drugs as were used by the Aztecs and which are still in common use in Mexico, but which as far as I know, are not known outside of that country. Many of them have been investigated in the National Medical Institute of Mexico City, where their therapeutic value, originally discovered by the Aztecs, was confirmed in many cases. Practically all of them are enumerated in the "Farmacopea Latino-Americana." I have obtained them mostly fresh from an old Indian woman who specializes in their collection and sale and I have convinced myself that all are genuine by consulting the cited pharmacopœia and investigations in the Biological Museum in Mexico City. Undoubtedly there is still a great field for scientific investigation of these drugs, confirming the therapeutic action claimed for them, finding the most suitable form of administration, finding and separating the active principles, etc. Notwithstanding the fact that the Latin American Pharmacopœia cites a number of native drugs as much used, but having little or no value, it appears to be nevertheless advisable not to take this opinion as final, but to rely on independent investigation, where there is reason to believe that after all the plant *does* have medicinal value. For example I have here a bark which is much used for malaria in certain districts where the tree grows. The Indians powder the dry bark and take of this powder as much as will go on a one *centavo* coin, several times a day. Now, a lawyer in the state of Querétaro having heard not only of the general use of this bark in cases of

[1] Buffalo A. PH. A. meeting.

malaria, but also, as he informed me, having been told of many cures, had asked me to prepare 500 tablets from the bark which he furnished, in order to check up their curative action on about two dozen malaria cases. He would not divulge or possibly did not know the name of the bark, which I was able to identify later as Copalchi bark, *Coutarea latifolia Dec*, his intention being to market the tablets, should the sample lot prove to be satisfactory; according to his later advises he had complete success. I was curious, of course, to find out if the bark possibly contained quinine, as it tasted bitter, although it did not look at all like any of the cinchona barks. The analysis, however, proved the absence of quinine. The "Farmacopea Latino-Americana" says of this bark: "Much used but appears to have little effect" and "The bark is sold falsely as cinchona bark." This experience shows that in such cases further investigation is not out of place. The use of Copalchi bark for malaria appears to be of a more recent date and not of Aztec origin.

I desire to mention here that most of my information was gathered from studies in the Biological Museum of Mexico City, from the Latin-American Pharmacopœia and from papers published by Dr. Leopoldo Flores.

In exhibiting this collection[1] I do not endeavor to present it in a certain order but rather at random.

The *Yoloxóchitl*, mentioned before, comes from *Talauma mexicana*, family *Magnoliaceae*, much used at present in nervous affections and heart diseases. The Aztecs used the decoctions of the flower to correct the bowels, to strengthen the heart and as a means against sterility. Its principal chemical constituents are said to be a glucoside and a substance called Talaumine, the latter being a red liquid, forming crystalline salts, for example the sulphate. The Talaumine acts as a paralyzer of the voluntary muscular system, but is said not to affect the heart, whereas the glucoside regulates the heart's action. This drug is claimed to be a substitute for digitalis, but evidently is non-poisonous. Single doses about 20 grains, in decoction, three times a day.

Copalchi Bark from *Coutarea latifolia*, family *Rubiaceae*, used for malaria as mentioned before.

Salvia de Bolita. Bolita in Spanish means little ball, which refers to the flowers. From *Buddleia perfoliata*, family Loganiaceæ. Its leaves resemble those of our sage and the plant has also a similar aroma. The active constituents are an acid resin and an essential oil. This plant is said to be an excellent antisudorific, it prevents the nightsweats of consumptives in a safe and sure way and without the inconveniences and toxic by-effects of other antisudorifics, as for example the atropine, which is not tolerated well for any length of time. Furthermore the *Salvia de Bolita* inhibits the secretion of nasal catarrh, coryza as well as that produced by alkali iodides. It is also stated to be efficient in combatting the ptyalism during mercurial treatment. Both the essential oil and the tincture are used; ten to thirty drops of the former per day and one fluid drachm doses of the tincture are employed. The plant is non-toxic; its use is apparently not of Aztec origin.

Cuautecomate, of Aztec origin, the fruit from *Parmentiera alata*,[2] family *Bignoniaceae*. Contains crescentinic acid and a coloring substance, said to be similar

[1] At Buffalo meeting, A. PH. A.

[2] Large ostrich-egg-like fruit.

to indigo. Quite frequently used for diseases of the lungs, particularly tuberculosis. Also made into tablets by some pharmaceutical houses. Usually the fresh pulp of this fruit is used.

Peyote (Pellote), one of the most interesting of the Mexican drugs, about which an article appeared in the JOURNAL of our society, February number of 1922. Supposed to come from Lophóphora varieties of the family of Cactus, growing in the valley of the Rio Grande and also from *Lophóphora Williamsii* growing in the states of Sonora, Chihuahua and San Luis Potosi. It is a sacred plant of the old Mexicans and was used by them for their religious ceremonies. Its effects resemble those produced by Cannabis Indica, but they differ in that the Cannabis Indica usually produces sleep after its initial effects are worn off, whereas the Peyote does not cause sleep, but on the contrary keeps its users awake and it is stated that by taking the aqueous extract of the Peyote every four to five hours the Indians could get along without sleep for as long as eight days and that they do not feel the slightest inconvenience during or after that time. The internal use of this drug in larger doses produces at first a nervous excitement combined with talkativeness and exuberance of brain activity, followed by a period of delirium; however, the effect varies in different persons. During the period of delirium the reflex movements increase, the pupils are much dilated, there is an excessive nasal and auditory sensibility, incoördination, convulsions, dullness of the sensibility of the skin, difficulty of concentrating the attention, hallucinations of the senses, principally the sense of sight and consisting in a play of kaleidoscopic colors continuously in movement, changing their shade with frequency and showing either linear, rotatory or circular movements while the eyes are usually closed. Colored objects are seen with much more intense colors than they actually possess. The intelligence remains usually in a normal condition. Sometimes a sensation of double existence is noted. If a fatal dose has been taken, a complete paralysis sets in and death is induced by asphyxia. It is said the Peyote user does not feel hunger or thirst and is capable of great physical performances, without getting tired; he is said to be able to dance all day and night during the religious ceremonies in which the partaking of the Peyote is the chief factor. If these statements are not illusions, the Peyote surely is a most remarkable plant. Mr. E. White of the hospital in Saint Thomas succeeded in separating four alkaloids from the peyote: Mescalina, Anhaloidina, Anhalonina and Lofoforina. Dr. W. E. Dixon of the same hospital studied the pharmacology of these alkaloids and found that they at first produce stimulation of the heart's action followed by a lessening of its contractions, increase of arterial tension, stimulation of the activity of the brain and the nervous center. The drug has been used in the form of hypodermic injections in cases of lunacy, as a sedative, with partially good results. It also has been given in the form of tincture and its fluidextract; its medical use is evidently very limited on account of its dangerous character. There is, however, another use made of this drug as the old Indian woman from whom I obtained it informed me: "*Las señoras lo compran para limitar la familia;*" translated: the ladies are buying it to limit their families; in other words Peyote acts also as an abortive.

Epazotl, an Aztec word, meaning painful herb, from *Chenopodium foetidum*, contains a volatile oil, resin and an alkaloid. The volatile oil has a very pungent and bitter taste, which seems to account for its name, "painful herb." Used by

the lay people as emmenagogue and anthelmintic, also as a sudorific and diuretic. The anthelmintic action of the oil has been confirmed and is said to be superior to that of santonine, but probably has no advantage over our oil of chenopodium. The action of the plant as emmenagogue, sudorific and diuretic has not been confirmed.

Palo del Muerto, in Spanish, and means: Wood of the dead. From *Ipomœa arborea*, vulgarly employed in alcoholic extraction in the form of rubs for rheumatism. The Latin-American Pharmacopœia says this of wood that it is inert and not used, probably meaning, not used by the medical profession.

Espinosilla, from *Loeselia coccinea*. Espinosa in Spanish means spiny, thorny. This drug is now known under the name of *Espinosilla* and for plausible reasons not by its Aztec name *Huitzitzitxóchitl*. Contains traces of volatile oil, several resins, tannin, an alkaloid and saponine. Used as a purgative and an emetic. Fifteen grains of the powdered root or sprout are said to produce vomiting within 5 minutes. Also used against falling out of the hair, probably on account of its saponine content.

Hierba de la Golondrina, from *Euphorbia prostrata*. When fresh it contains a white juice. Used among lay people for many diseases of the skin, but its therapeutic value has not been confirmed.

Hierba del Pollo, chicken herb, from *Commelina pallida*. The Aztecs called it Matlaliztic and used it against post-puerperal pains and haemorrhages. Contains resin, gum, tannin, etc. Its hemostatic action in metrorrhagia has been confirmed, also its efficiency in leucorrhea. It is also said to exert a beneficent action on hemorrhoids when applied locally, and has no toxic effect; is used in form of its extract, but principally the fresh juice of the plant.

Lentejilla, probably not of Aztec origin. Its botanical name is *Lepidium intermedium* and as readily can be seen a *Crucifera*. Contains volatile oil, an alcohol soluble acid resin, an alkaloid, tannin and a not determined organic acid. The plant is used with good results in acute and chronic enteritis as a clyster, 5% decoction of the fresh plant or 1% of the fluidextract. The plant is non-toxic.

Tatalencho, the Aztec *Xonequitite*, from *Gymnosperma multiflorum*, a member of the *Compositae*. Contains volatile oil, resin, an organic acid, etc. Its tincture in local application has given satisfactory results in alleviating rheumatic pains. A 10% decoction is stated to be a good antidiarrhoeal remedy.

Tronadora, Nixtamalxóchitl in Aztec, contains an alkaloid, resin, tannin, pectin substances, etc. The leaves are used by the public in the treatment of diabetes and the plant enjoys the reputation to cure or at least improve this affliction. According to the Latin-American Pharmacopœia authoritative observations concede a certain usefulness to the *Tronadora* in the treatment of diabetes. The plant has no toxic effect.

Zoapatle, known to the Aztecs under that name, which means medicine for the women; the botanical name is *Montanoa tomentosa*, family *Compositae*. The old Mexicans employed the leaves of this plant as a decoction to induce uterine contractions. The active principle is the so-called montanoic acid, an amorphous substance. This plant is a powerful oxytocic and its action comparable to that of ergot. When taken indiscriminately in large doses, it produces symptoms of poisoning and may even be fatal. It is indicated in the same cases as ergot, also after

parturition with good results to combat haemorrhages, to alleviate after-pains, etc. Used in 2% infusion or in the form of its fluidextract.

Tlalchichinole, also in use since Aztec times; botanical name is *Isoloma Deppeanum;* contains enzymes, volatile fatty acids, tannin, volatile oil, etc. This plant is to be found in many households as a first aid remedy and employed in various inflammatory conditions, principally in diseases of the female sex.

Simonillo, in Aztec called *Zacachichic*, meaning bitter herb. From *Conyza filaginoides;* employed by the old Mexicans as an emetic and cholagogue, also as a carminative, furthermore in dyspepsia and to alleviate cough. It contains a bitter glucoside, volatile oil, etc. Investigations have shown that the drug gives good results in counteracting catarrh of the bile ducts, it acts favorably in jaundice and is a noteworthy cholagogue. It is used either in decoction or as extract in pills.

Tabaquillo, from Calamintha macrostema, Labiatae. The leaves have an aromatic taste and are used for gastro-intestinal troubles. They contain a volatile oil which is claimed to be a good substitute for oil of peppermint, and is indicated for the same purpose as our peppermint. The use of this plant appears to be of a more recent date.

Toronjil, from *Cedronella Mexicana, Labiatae*, also very aromatic and contains a volatile oil. The plant is used as a substitute for balm leaves and it is said to possess the same effect.

Tumba Vaqueros, called *Tlaxcapan* in Aztec. The rhizome of *Ipomœa stans.* Used since times immemorial as a purgative by the Indians, also for hysteria and epilepsy. Contains a glucoside, resin, catechin, etc. Hospital experiments have not confirmed the purgative properties of this drug, which appears rather strange after being in use for centuries, and a self-deception on the part of the Indians as to the effect of the drug don't seem to be very likely for such a long time. In hysteria and convulsions the action of the dug is stated to have been more satisfactory.

Pinguica, or in the Aztec idiom *Tepizquitl*, the fruit of *Arctostaphylos pungens*, used already by the old Mexicans as a diuretic. The constituents are: fatty oil, a yellow coloring substance, considerable citric acid, resin, sugar, etc. No arbutine has been found. Clinical observations have confirmed the diuretic properties of these fruits. They are non-toxic and are employed as decoction and fluidextract.

Estafiate from *Artemisia Mexicana*, called *Iztauhyatl* in Aztec. This plant may become an important raw material for the manufacture of Santonine, which it contains in the proportion of about 1.2% according to investigations of the Biological Institute of Mexico City, and I believe also by the Department of Agriculture in Washington. The plant is used as an anthelmintic.

Raiz de Pyonia, also called *Tulillo*, from *Cyperus esculentus, Cyperaceae.* The natives use the decoction of one of the roots, taken internally, to alleviate neuralgic pains.

Capitaneja, from *Verbesina Capitaneja, Compositae.* It is much employed as a hair tonic in alcoholic extractions.

This fruit is called *Guázuma* and is used in cases of leucorrhea and also for cough. From *Guázuma polybotrya.*

Ojo de Venado, Spanish and stands for "Stag or deer eye" on account of the resemblance. The seeds of *Mucuna urens* have some similarity with Calabar beans and are used by the superstitious natives as an amulet, worn around the neck,

as a preventative against nervous afflictions of the face, particularly neuralgia.

It is quite natural that the various countries prefer to employ those vegetable drugs which they can grow themselves and that they use foreign drugs only when nothing equally good is available among their own. The pharmacopœias of the different countries evidently have the same point of view. It is to be assumed that many of the native Mexican drugs shown here have no superiority over similar drugs of other countries, but just as well it may be that some do have decided advantages over those used at present or possibly the one or the other may not be represented at all by any other doing the same work. The Yohimbi bark, for example, was first introduced in Europe in the year 1896, but was long known and used by the natives of Africa.

In order to arrive at the truth one should also consider the opinions obtained through traditions.

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FATAL POISONING CASES IN HENNEPIN COUNTY, MINNESOTA, DURING 1923 AND 1924.*

BY F. J. WULLING.[1]

I can never get away from the almost overwhelming feeling of responsibility of the calling of pharmacy. When we handle poisons, we are always faced with the possibility of mistake and the dire consequences that may follow. When we look into the public records, we find a corroboration of the need of extreme care in the handling of drugs and poisons.

I am not as successful as I want to be with the students in imbuing them with the great responsibility of the calling. We, and other colleges, teach them every possible method of preventing error; yet errors are occurring—some of them fatal.

The Commonwealth Fund of New York is conducting a study of pharmacy, "in order to find out what is necessary for the pharmacist to know." I am quoting those words. For many years pharmacists have endeavored to enlist the Carnegie Foundation in a survey of the schools of pharmacy and the practice of pharmacy, very much as it did with reference to medicine by virtue of which an increase in medical standards followed. The Carnegie Foundation felt it could not conduct such a survey at the present time. So the Commonwealth Fund of New York finally thought it would be a proper function for it to enter upon a study of the practice of pharmacy to enable the schools and the practitioners to revise, possibly, their educational and practitional methods.

So Professor Charters of the University of Pittsburgh was enlisted to direct the study. The Foundation will spend, I understand, about $25,000 on the study. A hundred thousand prescriptions are being studied to enable pharmaceutical educators and practitioners to come to some conclusion as to the amount and nature of study that should be required of prospective pharmacists.

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* Read at the joint meeting of the Northwestern Branch, A. PH. A., and the Scientific and Practical Pharmacy Section of Minnesota State Pharmaceutical Association, February 11, 1925.

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I have helped in the matter somewhat. Professor Bachman has helped. He has secured typical prescriptions from many parts of the State of Minnesota. The part I took included a calling of attention to the responsibility of the practice of pharmacy and suggested some study be made as to this question of responsibility. Whether as a result of my suggestion I do not know, but the study was made to include a chapter on fatal poisoning cases that are continually happening everywhere. I made an investigation in this state, but the figures I give you below cover only Hennepin County, in which Minneapolis is located. The figures cover the years 1923 and 1924. Dr. Seashore, the Coroner of Hennepin County, was good enough to give them to me.

TOTAL CASES OF POISONING FOR 1923 AND 1924 UP TO DECEMBER 15, 1924, REPORTED FROM THE OFFICE OF THE CORONER OF HENNEPIN COUNTY, MINNESOTA.

Name of poison.	Accidental. 1923.	Accidental. 1924.	Suicidal. 1923.	Suicidal. 1924.	Homicidal. 1924.
Alcohol	21	17			
Carbolic acid			8	3	
Lye			1		
Lysol			3	2	1
Veronal	2	1			
Sulphuric acid			1		
Cyanide	2	1	2		
Hydrocyanic acid	1				
Strychnine sulphate			1		
Blaud's pills	1				
Barium sulphide	1				
Turpentine	1				
Paregoric		1			
Luminol		1			
Arsenic (rat cracker)		1			
Bichloride of mercury				1	
Chloroform with some other soluble poison				1	
Phosphorus from "sons of gun" fire cracker		1			
Mushrooms		1			
Unknown poison				1	
Mixture of gasoline and carbolic acid		1			
Totals	29	25	16	3	1

SALICYLATE OF METHYL IN 1875.

The *Chemist and Drugist* reprints a report of an evening meeting from the *C. & D.* of February 15, 1875, when the "International Pharmacopœia" was discussed. Also "Mr. Williams read a paper on 'Salicylate of Methyl.' Prof. Kolbe has, as is well known, recently discovered a method of producing salicylic acid artificially. The oil of wintergreen consists almost entirely of salicylate of methyl. Mr. Williams has combined the artificial salicylic acid produced by the destructive distillation of wood with the artificial methyl produced from the destructive distillation of coal and has obtained a substance quite identical in flavor with the oil of wintergreen. This is a very remarkable step in the artificial 'building up' of Nature's products and points to the early realization of the chemists' dream of constructing such bodies as quinine, morphia, and strychnia."

It seems that the "ine" ending was not applied to distinguish alkaloids, while quinine is given in that way the other two alkaloids mentioned have the "in" ending.

Methanol is a recent product of chemical synthesis and, it is said, its production is possible at a price below that of the so-called "natural."

THE ARSENICAL SOLUTIONS.

No. 3.* *Liquor Arseni et Hydrargyri Iodide* (*Donovan's Solution*).

BY H. A. LANGENHAN.**

History and Original Formula.—The *Solution of Iodohydrargyrate of Arsenic* was first introduced into medical practice by Dr. Donovan of Dublin, in 1839. According to Donovan, the solution was the result of his attempt to administer, in combination, the three common remedies, *viz.*, arsenic, mercury and iodine, that were being used as specifics against "psoriasis, lepra and lupus." Based on the work of Bonsdorff[1] on *iodohydrargyrates* he experimented with mercury di-iodide and arsenic tri-iodide. He found that these two substances would go into solution in water, *i. e.*, the insoluble mercury salt would go into solution in the presence of the soluble arsenic salt, and that the color of the solution of the two salts was different from the color of the solution of arsenic tri-iodide alone. Likewise the red color of the mercury di-iodide disappeared. After examining this solution (see Report in appendix) he concluded that a chemical change took place when the two substances were dissolved in water, resulting in the formation of a new compound, which he designated as an *iodohydrargyrate of arsenic*. Not being satisfied with the purity of the arsenic tri-iodide and the mercury di-iodide found on the market, Donovan resorted to the use of the three elements, iodine, arsenic, and mercury for preparing this compound in solution.

Apparently the method of preparation as suggested by Donovan presented some difficulties and, as a result, Soubeiran[2] in 1841, proposed a modified formula in which he substituted the two iodides in place of the elements.

The Dublin Pharmacopœia of 1851 was the first to adopt this solution to which it applied the title *Arsenici et Hydrargyri Hydriodatis Liquor*. The formula as offered by Donovan was used. The first edition of the British Pharmacopœia (1864) did not contain this liquor but the revision of 1885 adopted it under the title *Liquor Arsenii et Hydrargyri Iodidi* and at the same time adopted the modified formula of Soubeiran. Each following revision of the British Pharmacopœia retained this liquor. Of the revisions of the U. S. Pharmacopœia that of 1850 was the first to contain this liquor, to which it applied the title *Liquor Arsenici et Hydrargyri Iodidi*. This revision adopted the formula suggested by Soubeiran in preference to the more tedious one of Donovan. As its admission into the U. S. P. precedes that into the B. P. it seems probable that the adoption of Soubeiran's formula into England was influenced by the choice of the American revision committee. All succeeding revisions of the United States Pharmacopœia have retained this solution. Other Pharmacopœias than the U. S. P. and B. P. apparently have not introduced it.

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* For No. 1 in "Proc. Wis. Acad. Science Letters and Arts" V. XX. No. 2, JOUR. A. PH. A., Vol. 14, p. 408.

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[1] Kopp, "Geschichte der Chemie," Vol. 3, p. 83; also Federking, "Grundzuege der Geschichte der Pharmacie" (1879), p. 219; Buchner, "Repertorium fuer die Pharmacie," Vol. 30, p. 260 and Vol. 40, p. 288.

[2] *Jour. de Pharm. et de Chim.*, 27, p. 344 (1841).

Comments on the Pharmacopœial Text.

Introductory Statement.—Donovan's Solution was first introduced into medical practice in 1839. Naturally a new preparation of this kind would not be adopted by the pharmacopœial revision committee before its usefulness in medicine had been established. Hence the committee of 1840 did not consider this solution but left it for the next decennial revision committee. The committee of 1850 adopted the solution, which has been retained in all of the following revisions of the U. S. P. Hence there are seven texts to be considered. As with the two arsenical solutions already reviewed, the detailed comments on the text, whether based on the literature of the text or on laboratory experiments or observations, are recorded with those parts of the text to which they have reference. The following are the text subjects commented upon:

1. Title and synonyms.
2. Definition.
3. Preservation.
4. Arsenic tri-iodide as an ingredient.
5. Mercury di-iodide as an ingredient.
6. Ratio of ingredients.
7. Water.
8. Amount of water to effect solution.
9. Solution of arsenic triiodide and mercury diiodide.
10. Volume of finished product.
11. Appearance of finished product.
12. Qualitative tests.
13. Assay.
14. Dose.

1. *Title and Synonyms.*—Donovan in 1839 prepared his original solution from the elements, arsenic, iodine and mercury. To the aqueous solution he applied the title *Liquor hydriodatis arsenici et hydrargyri.* The Dublin Pharmacopœia of 1851 introduced this solution under the title *Arsenici et Hydrargyri Hydriodatis Liquor.* (English, *solution of hydriodate of arsenic and mercury.*)

With the consolidation of the London, Dublin and Edinburg Pharmacopœias, Donovan's Solution was omitted from the British Pharmacopœia of 1864. The next revision, however, that of 1885, contained this solution under the title *Liquor Arsenii et Hydrargyri Iodidi.* The same title was used in the revision in 1898 and also in the last revision, that of 1914.

The U. S. P. of 1850, the first edition to contain this solution, applied the title *Liquor Arsenici et Hydrargyri Iodidi.* This title was also used by the revisions of 1860 and 1870. In 1880 the U. S. P. title was changed to *Liquor Arsenii et Hydrargyri Iodidi,* and to *Liquor Arseni et Hydrargyri Iodidi* in 1890. This title was adopted by the following decennial revision and the present one, that of 1910.

Definition.—As with Fowler's solution, a definition appears for the first time in the revision of 1900. This was modified in the 1910 revision. "An aqueous solution, which should contain not less than 1 per cent of Arsenous Iodide and 1 per cent of Mercuric Iodide," was the 1900 requirement. The modification introduced into the 1910 definition permitted a slight variation in the per cent of each ingredient, *viz.*, "not less than 0.95 per cent nor more than 1.05 per cent."

3. *Preservation.*—The last revision of the U. S. P. (1910) directs that the solution be kept in well-filled amber-colored bottles and that it should not be dispensed if darker than a pale yellow color. What the nature of the composition is if the solution becomes darker in color is not clearly understood. According to an unsigned article[1] in the *American Journal of Pharmacy* the red color appearing in this

[1] *Am. Jour. Pharm.*, 31, p. 409.

solution is due to free iodine contained in the arsenic tri-iodide used. Boiling the solution, the writer states, expels the iodine, though not without some loss of the volatile "arsenical salt." L. A. Brown[1] suggests the addition of a small globule of mercury to the solution and shaking until the red color disappears. The red color he states is due to free iodine, although he does not suggest any cause for this. The presence of free iodine appears doubtful, for it could not be shaken out with chloroform, neither did it give the iodine test with starch. J. Rosin[2] reports that oxidation of arsenous arsenic takes place in this solution. At the end of one year and eleven months he found that it had lost over one-half of its arsenic tri-iodide content, although the total arsenic content remained the same. Whether the appearance of the red color and the oxidation are related is not apparent, from the literature on the subject.

4. *Arsenic Tri-iodide as an Ingredient.*—Donovan,[3] in his original formula, used the elements, arsenic and iodine, for the formation of the arsenic tri-iodide in solution. This procedure was adopted by the Dublin Pharmacopœia of 1851.

In 1841, Soubeiran[4] having computed the amount of arsenic tri-iodide formed according to Donovan's original formula, obtained from a French translation of Donovan's report, suggested the use of this compound in preparing the solution. In 1847 Procter[5] made practically the same suggestion based on the same considerations but gave no credit to Soubeiran. As both the U. S. P. and B. P. used arsenic tri-iodide for preparing the solution and not the two elements, it seems proper to say that the suggestion of Soubeiran was adopted, although the U. S. Dispensatory of 1873, p. 1241, gives Procter credit for the formula adopted by the U. S. P. of 1850.

The revisions of the U. S. P. of 1850, 1860, 1870 and 1880 directed the use of "Iodide of Arsenic;" that of 1890 prescribed "Arsenic Iodide," and the revisions of 1900 and 1910 direct that "Arsenous Iodide" should be taken.

No purity rubric for arsenic tri-iodide was given in the revisions of the U. S. P. of 1860, 1870, 1880 and 1890. Hence some variation in the strength of the solutions may have existed due to the difference in quality of the commercial arsenic tri-iodide. The first three revisions mentioned gave a method for preparing the arsenic tri-iodide, and described its physical properties, as to color, solubility in water and volatility. The revisions of 1880 and 1890 omitted the method of preparation but added several qualitative tests. The revisions of 1900 stated that arsenic tri-iodide "should contain not less than 82.7 per cent of iodide and 16.3 per cent of metallic arsenic." The 1910 revision specifies that arsenic tri-iodide shall contain "not less than 99 per cent AsI_3."

That the products obtained by the various methods prescribed and the composition of the commercial product varied is evidenced by the numerous reports on the composition of arsenic tri-iodide. The following references represent only a few of these. H. F. Fish, *Am. Jour. Pharm.*, 13, p. 97; Plisson, *Annal. d. chim. et d. Physique*, 39, p. 265; Richter, *Apoth. Ztg.*, 26, p. 729; Lyons, "Rep. of

[1] *Ky. Ag. Exp. Sta., Bull.* No. 150, p. 154.
[2] Jour. A. Ph. A., 6, p. 951.
[3] See Donovan's Report in Appendix.
[4] *Jour. de Pharm. et de Chim.*, 27, p. 744 (1841).
[5] *Am. Jour. Pharm.*, 19, p. 93 (1849).

the U. S. P. Rev. Com. 1900," *Cir.*, 300, p. 1282; Cowley & Carford, *Pharm. Jour.*, 21, p. 131 and p. 217; Coblentz, *Am. Jour. Pharm.*, 78, p. 387.

5. *Mercury Di-iodide as an Ingredient.*—Pure mercury and iodine were used in Donovan's original formula and in the formula of the Dublin Pharmacopœia of 1851 for the formation of mercury di-iodide. Soubeiran having computed the amount of mercury di-iodide formed according to Donovan's formula, suggested the use of this salt in place of the two elements. (Compare with arsenic tri-iodide No. 4.) Hence we find that the U. S. P. of 1850 prescribed the salt in place of the two elements.

"Red iodide of mercury" was called for in the revisions of the U. S. P. of 1860 to 1880 inclusive, and "Red mercuric iodide" in the revisions of 1890 to 1910 inclusive.

It was not until 1900 that a purity rubric was adopted for mercury di-iodide. Previous to this, each revision contained directions for preparing the compound. As the methods differed, undoubtedly the composition of the products varied. The revision of 1850 prepared the mercury di-iodide by triturating definite quantities of mercury and iodine in the presence of alcohol, until the color of the iodine had disappeared. The product obtained from this method undoubtedly varied with each manipulator. The remaining revisions, *viz.*, those of 1860 to 1890 inclusive, prepared this salt by mixing aqueous solutions of potassium iodide and mercury dichloride, and collecting the precipitated mercury di-iodide. This was washed and dried. This process undoubtedly gave a more satisfactory product than that of 1850.

6. *Ratio of ingredients.*—Based on the computed iodides, Donovan's original formula contained 36.8 grains of arsenic tri-iodide to 34.7 grains of mercury di-iodide in eight ounces of solution. The formula of the Dublin Pharmacopœia of 1851 contained the equivalent of 36.5 grains of arsenic tri-iodide to 36.25 grains of mercury di-iodide in eight fluid ounces and six fluid drachms of solution.

The British Pharmacopœia of 1885 prescribed 45 grains of each iodide in 10 fluid ounces of solution. In 1898 the change was made to 87.5 grains of each iodide to one pint (Imperial) of solution. The revision of 1914 placed the solution on an approximately 1 p. c. basis, prescribing 10 grams of each iodide to 1000 milliliters of solution.

The 1850, 1860 and 1870 revisions of the U. S. P. directed the use of 35 grains of each iodide to one pint of solution. That of 1880 prescribed one part of each iodide in 100 parts of solution; that of 1890, 10 grams of each iodide in 1000 grams of solution. This formula was also adopted by the 1910 revision.

Consequently in all of the formulas employed the ratio of iodides was 1 to 1, except in the case of Donovan's original formula, which approximates this ratio so closely that its author must have intended it.

7. *Water.*—In his original formula Donovan prescribed *distilled water* and this only has been prescribed in all of the pharmacopœial formulas.

8. *The amount of Water used to effect solution.*—Donovan in his original formula used eight ounces of distilled water to effect the solution of the two iodides; as did the Dublin Pharmacopœia of 1851. The British Pharmacopœia of 1885 used one and one-half ounces of water to 45 grains of each iodide. That of 1898 increased the quantity to "three to four ounces" to dissolve 87.5 grains of each io-

dide, and the revision of 1914 directs the use of 250 milliliters of water to effect the solution of 10 grams of each iodide.

The 1850, 1860 and 1870 revisions of the U. S. P. each called for one-half ounce of distilled water in which to dissolve 35 grains of each of the two iodides. In the 1880 revision 15 parts of water were used for 1 part of each iodide and the remaining three revisions, *viz.*, those of 1890, 1900 and 1910 each prescribed 150 cc. of distilled water to effect the solution of 10 grams of each iodide.

9. *Solution of Arsenic triiodide and Mercury di-iodide.*—Donovan claimed that when the three elements, *viz.*, arsenic mercury and iodine, or their respective iodides, were dissolved in water, a chemical union took place. This new compound he designated as an *iodohydrargyrate of arsenic.* He based his conclusions on the observations that the solution was nearly colorless, having neither the color of an aqueous solution of arsenic tri-iodide nor that of mercury di-iodide, and that the solution could be distilled without decomposition. He also concluded that this combination was similar to those of the double halides reported by Bonsdorff.

Bonsdorff's work was on the halides of the metals. In 1820[1] he reported that certain metallic halides acted as "acid like bodies" and others acted as "base like bodies." These when brought together in solution would combine to form "double salts." For example, he stated that mercury dichloride acted as an acid and that potassium chloride acted as a base. The two would combine to form a double salt. This is an application to the double halides of the electro-salt. This is an application to the double halides of the electro-chemical theory of Berzelius as applied to double salts illustrated by such examples as the double sulphate in alum.

From the long list of double salts of both arsenic and mercury enumerated by Abegg,[2] the following have been selected to show that the so-called double salt of arsenic tri-iodide and mercury di-iodide is by no means an isolated case.

Of the double salts of arsenic halide but two examples are given in vol. 3, part 3 and 2 respectively:

p. 536 $2AsF_3.2KF.H_2O$
p. 641 $AsI_3.3PbI_3.12H_2O$

Of the double halides of mercury the examples are more numerous: vol. 2, part, 2:

p.642 $H_2HgCl_4.7H_2O$	Na_2HgCl_4	NH_4HgI_3	
$2HgCl_2.HCl.6H_2O$	NH_4HgCl_3	$Hg_3(Hg_2I_6)$	$= HgI_2.2HgI_2$
$4HgCl_2.2HCl.9H_2O$	$(NH_4)_2.HgCl_4.H_2O$	Ag_2HgI_4	
$3HgCl_2.HCl.5H_2O$	$2NH_4Cl.3HgCl_2.4H_2O$	Cu_2HgI_4	
$KHgCl_3.H_2O$	$2NH_4Cl.9HgCl_2$	p. 629 K_2HgBr_4	
$K_2HgCl_5.2H_2O$	p. 647 $KHgI_3$	p. 630 K_2HgCl_4	
$NaHgCl_3.1^1/_2H_2O$	K_2HgI_4		

[1] Kopp, "Geschichte der Chemie," vol. 3, p. 83; see also Frederking, "Grundzeuge der Geschichte der Pharmacie," (1879), p. 219; and Buchner, "Repertorium fuer die Pharmacie," vol. 30, p. 260, and vol. 40, p. 288.

[2] "Handbuch der Anorganischen Chemie," Abegg.

(*To be continued*)

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MISCELLANEOUS PLANT CONSTITUENTS.

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DRUG STORE MANAGEMENT.*

BY A. T. MAIER.

Every manager has his own methods. However, there are a few very important points which we, as pharmacists, must always keep before us, in order that we may command respect and attain that end which we all desire, success.

The first important point which applies to any business which depends upon the public for a livelihood, is courtesy.

A smile, a cheerful greeting, a pleasant word or two, a willingness to please, a sunny disposition, all help to strengthen the bond of friendship between merchants and customers.

The business or professional world has no place for the grouch, or person of that type. So far as intelligence is concerned he may be superior, but if he has not learned the value of courtesy his future in the professional or commercial world is not very promising.

Many pharmacists who find their business slipping away from them fail to understand why. Very often the remedy lies with them. A little courtesy extended to customers in the store will keep them coming back for more. And the beauty of it is—it costs nothing.

In order for a pharmacist to have this sunny disposition his work and surroundings must be to his liking. No pharmacist can work twelve to sixteen hours per day, month after month, and greet his customers in a courteous manner. It is high time that pharmacists fully realized this fact.

One of the best schedules that I know of, where two registered men are employed, is for each man to average a trifle over nine hours per day. It is worked like this: One man opens the store at 8:00 A.M. and works until 1:00 P.M., he is then off until 6:00 P.M., when he returns and works until 10:00 P.M., or closing time. The second man reports at 10:00 A.M. and works until 6:00 P.M. when he is through for the day. A lunch period between 12:00 and 1:00 P.M. is provided for. By alternating daily each man has every other afternoon or evening off, and part of every other morning.

If the store is open all day Sunday the same schedule may be continued, or by agreement each man can arrange to have a full day off every other Sunday. However, in my opinion there is no necessity for keeping open all day Sunday; it is up to the pharmacist. He has educated the public to the fact that his service and wares can be had at any time. Fully 80 to 90 per cent of the Sunday sales are not necessities. The same thing, in a way, applies to hours during the week days. In our community we have customers so educated that they never think of asking to have a package delivered after 9:30 P.M. Furthermore, they know that the store closes at 10:00 P.M.

Pharmacy has lost somewhat of its professional standing, and why? Because of the greed for money. The druggists, etc., have allowed the public to place an estimate upon them that will take years to overcome. I say druggists, etc., because there is a difference to-day between the pharmacist, druggist and the "etc."

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* Section on Practical Pharmacy and Dispensing, A. PH. A., Buffalo meeting, 1924.

The Pharmacist is the professional man, the college graduate, who lives up to professional standards—works for the uplift of his profession and serves his community in a professional way. He is the man who gives courtesy and service. The Druggist may lack only in the service he renders and the volume and kind of sales in his store. The "etc." is a recent event, he came with prohibition. He is the type of man who neither knows pharmacy nor does he care. He is in the business because some one told him there was money to be made in the drug store. He pays more attention to his cut rate variety store and bottle goods, that can be sold in pints only. He is a menace to the profession and a respectable community. It is high time that some action for his riddance be taken through the proper channels. You gentlemen assembled here should pass a resolution to the effect that some classification be made of these men. Put the Pharmacist where he belongs, as a professional man, and do not place him with the foregoing. The majority of the citizens of the United States are for law enforcement, and have a lot of respect for the professional pharmacist. In these days of advanced science, distilled liquor (outside of alcohol itself such as used for manufacturing purposes) is not a necessity.

Another failing of the majority of the drug stores to-day is overstock, thus causing a tremendous overhead. The average drug store to-day could get along with at least one third less stock. How to buy, and what to buy is the biggest problem in any business.

The average pharmacist becomes infatuated with the silver-tongued salesman, who make such inviting offers—such as, so many free, or such and such a discount with an order of so many dozen; or so many free with an order amounting to so many dollars. If the pharmacist would put pencil to paper before he makes such purchases, he would find in many instances that he would be better off to buy a smaller quantity and discount the bill, instead of having a portion of it on the shelves for a number of months, which in many instances represents the profit. Right here let it be stated that all bills should be discounted, if possible, because a 2% discount for cash, or thirty (30) days net, amounts to 36% in the course of a year.

The practice of Pharmacy is beginning to be a lost art, with the average pharmacist, so far as the manufacture of preparations is concerned. After he leaves the pharmaceutical laboratory at college, he very seldom thinks of making preparations, simply because the salesman tells him that he can buy them cheaper. Can he? Put pencil to paper again and you will find that you have to buy from 1 to 5 gallons to get a low price, then figure how long it will rest on your shelf. Compare this with a 1- or 2-liter quantity of your own manufacture; it is the turn-over that you are after, besides, every pharmacist should pride himself on preparations of his own manufacture.

Pharmacy must advance along with the other professions and be recognized as such. This will only be accomplished when adequate laws are passed requiring all candidates for registration to be college graduates, and the ownership of pharmacies restricted accordingly.

A RETROSPECT OF PHARMACY.*

With institutions no less than with men, an anniversary may well afford an opportunity for a glance backward over the past as well as for a forecast of the future and to have reached one's fortieth birthday should be an occasion for rejoicing, as it signifies the attainment of maturity and of powers and qualities which enable the giving of the maximum of service.

It is, perhaps, fitting that a Chicagoan should share in your birthday celebration, for if I read history rightly Chicago came very near being the metropolis of your state instead of that of your sister commonwealth to the south. But if Wisconsin failed to annex Chicago, the Garden City has profited greatly from your proximity and owes to the Badger State a debt of gratitude for the citizens you have sent her. I could name a considerable number of pharmacists of Wisconsin birth who have come to Illinois to our advantage, for they have taken leading parts in our efforts for the betterment of pharmacy.

In 1885, when your course in pharmacy was scarcely begun, Chicago had already a flourishing school of pharmacy, with two hundred students, well-equipped laboratories and a building designed especially for its use. *The Pharmacist*, the first pharmaceutical journal published in the West, was closing a career of twenty years by merging into the *Western Druggist*. Strong colleges of pharmacy in Philadelphia and New York drew many western students and in the University of Michigan, the first of the state universities to enter the field of pharmaceutical education, the school of pharmacy had been established nearly a score of years. It is not surprising, then, that the establishment of your course was attended with some difficulties and discouragements. It must be a source of pride to your pharmacists to recall that the Wisconsin Pharmaceutical Association was largely responsible for the inauguration of your course in pharmacy. Had its President, Mr. Robinson, been less enthusiastic or less persistent, the new course might easily have been postponed indefinitely. You were also most fortunate in securing as your first professor of pharmacy so able a teacher and so brilliant an investigator as Dr. Frederick B. Power, and not less fortunate in finding a worthy successor to him in your present director. That the state association showed its interest in a tangible manner by instituting a prize medal is further evidence of its far-sightedness, and this medal was awarded for the first time to Henry G. Ruenzel of the Class of 1885. Some prize winners disappoint the promise of their student days, but not so Mr. Ruenzel, who has made a name for himself as a leader in pharmaceutical affairs in your state.

The "old line" or independent colleges of pharmacy were established through the efforts of local associations of pharmacists and they functioned according to the ideas of their founders; their teaching was in the nature of a *finishing* course for young men who had already received a somewhat rigorous practical training in drug stores. Indeed, the old-time druggist—who milled his drugs, made most of his galenicals, and was a real preceptor to his apprentices—might give a training that was not to be scorned. At first, these colleges gave courses of lectures only,

* An address delivered by Wm. B. Day at a convocation of the alumni, faculty and students of the Course in Pharmacy of the University of Wisconsin, on the occasion of the fortieth anniversary of the graduation of their first class in pharmacy.

chiefly at night. Later, these lectures were extended and given during the day, with supplementary quizzes and reviews and accompanied by laboratory practise. In this development the influence of the newly-founded schools of pharmacy of the state universities was clearly seen; for the latter, from their very beginning, emphasized the importance of laboratory courses, and were less insistent on drug store experience. To sum up, while the independent colleges of pharmacy aimed to graduate qualified pharmacists, the state universities trained for life, for citizenship, and afforded a broader education upon which the technical superstructure could be safely erected. All honor to the old-time schools, however. They were the pioneers in pharmaceutical education and faced the hardships that pioneering entails. They were instituted and maintained only through the devotion and self-sacrifice of relatively small groups of druggists who were actuated by a desire to provide adequate instruction for their apprentices.

The university schools came later and found the field prepared for their work, in some measure at least, through the efforts and influence of their predecessors. With differences such as these, differences in organization and in method, even more than in aim, it is not surprising that misunderstandings arose, which nullified the early efforts toward the coöperation of the schools of pharmacy and led to the dissolution of their first association. But with the passing of years, each of these groups of schools drew on the other for much that was good and adaptable. The "old line" colleges paid less attention to drug store training and more to laboratory instruction. Entrance requirements were increased and a better educated class of entrants was secured. Several of the older schools became affiliated with or actually merged into universities and attained, more or less completely, university ideals and viewpoints. Meanwhile, the university schools welcomed the opportunity to add prescription dispensing, through hospital practise, and also developed other technical courses, with the result that there has been in recent years a more cordial relation between these groups, who have worked together harmoniously for the advancement of pharmaceutical education. Many weak schools have been weeded out; standardized curricula have been adopted, and at many schools elective courses are offered. The fundamental sciences, chemistry, botany and physiology, which the university schools have especially stressed, are taught more thoroughly. An increasing number of young men and women are taking advanced work leading to higher degrees. Research is encouraged. There is no reason for discouragement in our educational outlook.

Most striking have been the changes in the practise of pharmacy as carried on in the retail drug business during the past four decades. I need not go into details. Suffice it to say that the manufacture of pharmaceutical preparations has gone almost entirely into the hands of the large manufacturers. Few pharmacists now make more than a limited number of the simpler galenicals. Accompanying these changes has been an intensive development of merchandizing and an extension of "side lines" of many kinds. In the larger cities, high rents and rising wages have made it almost impossible for the druggist to survive except through such merchandizing. Price cutting followed as a matter of course. To escape from these conditions a few pharmacists, favored by environment, have established themselves in offices on the upper floors of large buildings where many physicians

are located, and these pharmacists are able to carry on a practice that consists entirely of prescription compounding and sale of drugs.

Pharmaceutical organizations, chiefly local in scope, have vigorously fought price cutting, though with uncertain success, while efforts looking to the standardization of merchandise, including drugs, and the stabilization of prices, though they have made headway, have still some distance to go. And yet, on the whole, the retail druggists have shared in the general prosperity of the country; the volume of their business has markedly increased; their hours of business are fewer, and they have more leisure for recreation and self improvement as well as for their organizations. Advertising campaigns aiming to "sell pharmacy" to the public are springing up. Coöperative buying and coöperative manufacturing have met with some success, and taken in all, the prospects for the retail druggists seem brighter than they were in the "good old days" of 1885.

I have already referred to the fact that your State Pharmaceutical Association is chiefly responsible for the inauguration of the course in pharmacy in your university and is deeply interested in its maintenance. You, the alumni and friends of the school, might well be asked what you are doing for the association? It is an important duty of the school of pharmacy to impress upon its students and alumni the need for pharmaceutical organizations. With their aid great things are possible. You, as educated pharmacists, should interest yourselves in your city, state and national organizations. You can quicken their functions and arouse them to greater activity. Your influence used in a right and proper way will make sure that the men to whom is entrusted the duty of examining candidates for license as pharmacists are men qualified by education and training for this responsibility. Bend your efforts toward placing on your statute books a law that will require every candidate for license to show evidence of systematic training, such as shall ensure a reasonable degree of fitness for pharmaceutical practise. Drug store experience is no longer sufficient. Cram school methods are wholly inadequate. Nothing less than the successful completion of a standard course in pharmacy based upon full high-school training will meet the present need. It is sometimes urged that we have too many drug stores. But we have no excess of well-trained pharmacists. Those pharmacists who have been poorly prepared could well be spared, for they are likely to hinder the progress of the whole profession.

A weakness common to many State Pharmaceutical Associations is their failure to function continuously throughout the year. At the annual convention, and for a few weeks preceding, considerable enthusiasm is aroused. But when the great event is past, the enthusiasm evaporates. We need all the year round organizations that shall be constantly on the alert and at work. Provision should be made for the governing bodies, executive committees and the like, to hold frequent meetings. In some successful organizations such committee meetings occur monthly, in others quarterly. A journal or bulletin to keep the members in close touch with the activities of the association is absolutely necessary. The influence of the state association should be exerted to secure the establishment of *local* associations, city or county, throughout the state. The success of both state and national organizations depends largely on these local units. The American Medical Association with its comprehensive coördination of local and state units is an example of what can be accomplished along these lines.

The schools of pharmacy have long supplied a large part of the really active membership of the AMERICAN PHARMACEUTICAL ASSOCIATION. That association is now passing through a period of growth and reorganization that augurs well for its future usefulness. Every educated pharmacist should be a member of it. No other group of pharmacists is capable of accomplishing what the A. PH. A. has set forth as its task. No other organization includes in its membership representatives of all the various drug interests. Among the latest undertakings of this parent body is the erection of a headquarters' building which shall serve all of these. A considerable fund, sufficient to assure the success of the scheme, has already been subscribed. It is planned to make this a center for pharmaceutical activities. Research laboratories, a library, and a museum are assured; publicity and propaganda departments will doubtless be included. The forces of pharmacy are now scattered and largely ineffective. Such an opportunity to combine and strengthen these forces has never before been offered. The project deserves your fullest coöperation and support. The successful conclusion of this campaign means that pharmacy will tremendously increase its power and influence.

As alumni of the University of Wisconsin, you have indeed reason to be proud of your Alma Mater. Your school was the first to offer a four-year course in pharmacy leading to a bachelor's degree. This forward step was followed by a more extended recognition of pharmacy when you made provision in your Graduate School for granting the degree of Doctor of Philosophy, with pharmacy as a major subject. The men upon whom this degree is bestowed will reflect the greatest credit to your school and will constitute a most convincing argument for the right of pharmacy to a professional status. Your pharmaceutical experiment station is another accomplishment which is full of promise. With these achievements to your credit there can be no doubt of the future of your school. WM. B. DAY.

THE REMINGTON HONOR MEDAL.*

To explain life is as difficult as it is to define a poison. As viewed to-day, life is the most unique and exceptional of phenomena. However, the functions of life are legitimate subjects for our study.

The biologist has so broad a purview of life and liberal conception of creation that he regards human beings as but one kind of organism in the midst of a myriad of other organisms.

In every-day routine life, few of us think in as broad terms as the biologist. We are restricted to what most concerns our momentary welfare or pleasure.

Thus it is that to-night I am impressed with the trait of human nature that encourages the recognition of real or supposed merit and the conferring of honors.

This is but an infinitesimal part of the totality of what exists. It is, however, the special prompting of the human heart and expression of the mind which has brought us together.

It is a human attribute that must have become manifest early in the life of

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* Abstract of address made by Henry M. Whelpley at a Testimonial Dinner given at the Hotel Pennsylvania by the New York Branch of the AMERICAN PHARMACEUTCIAL ASSOCIATION on the occasion of presenting him with the Joseph Price Remington Medal, May 25, 1925.

primitive man. Certainly, it has made life worth the living for countless passive recipients of honors and many times the number of active donors.

It is often said that our present-day life tends to dull our finer sensibilities. That in the panorama of the world, modern competition and constantly feverish activities have robbed this generation of those kindly traits of character that instinctively draw people together in noble thoughts and worthy actions.

Too often does it appear true that the exalted ambitions of which our forefathers were so proud have failed to descend unto the rank and file of modern man.

Thus, it is with an intense interest and a keen sense of pleasure that I find in the establishing of the Joseph Price Remington Medal the embodiment of a precious tradition.

This award of which I am the humble recipient for 1925, carries with it tangible honor and distinction which I am sufficiently human to recognize and appreciate.

There is another fact inconspicuous in the larger aspects but full of significance to me in my nearer view.

The Remington Honor Medalist for 1925, H. M. Whelpley, St. Louis, Mo., and the Remington Honor Medal.

The world will little note nor long remember what we do or say on this occasion. In my mind, however, will remain throughout the continued days of my life a deep impression made by the sentiment and atmosphere of this occasion.

The medal is made of precious metal but the association of ideas which accompany it are delightfully human and of a truly noble type.

At the present time, the medal radiates the deep and burning interest of Joseph Price Remington in pharmacy. It brings to all who knew him the same enjoyment of the expenditure of effort in our chosen profession.

In 1884, I attended my first meeting of the A. Ph. A. Not having missed an annual meeting since, I am now fairly well saturated with the A. Ph. A. thoughts and ambitions.

Close touch in work and recreation for more than forty years with those who have determined the policy of the association has changed many of my ideals into living realities.

The officers who conducted the 1884 meeting and those elected on that occasion naturally attracted my close attention. Among them were:

W. S. Thompson of Washington, D. C., who was president in the chair. He was a parliamentarian of rare skill which excited my youthful admiration. When I learned that he was pharmacist to the White House, I was awed.

John M. Maisch was secretary, an office he had held for twenty years, having

been elected when I was but four years old. Maisch was not a man who sought out happiness but who found pleasure in the routine of life.

It was at this meeting in Milwaukee in 1884 that I first met the Ebert-Hallberg-Oldberg trio.

Albert Ebert, ever alert and usually suspicious, gave me good, fatherly advice.

C. S. N. Hallberg was nearer my own age. He enjoyed oral contention and never side-stepped a debate.

Oscar Oldberg, a calm, mild-mannered man who camouflaged his stubbornness and usually won out in his own way.

John Ingalls, of Macon, Ga., was elected President that year. A man fortunate in his heritage and fortunate in his character. A real gentleman from the sunny south.

Among others who attracted my attention were S. A. D. Sheppard, J. L. Lemberger, C. Lewis Diehl, William Saunders of Canada, George W. Sloan, Robert J. Brown, M. W. Alexander, J. M. Good, P. W. Bedford, E. H. Sargent, J. W. Colcord, L. E. Sayre, P. C. Candidus, Treasurer Charles A. Tufts and John Uri Lloyd.

Joseph P. Remington was Chairman of the Council. This position he had held since the formation of the Council in 1880.

As far as I know, J. L. Lemberger, Professor Lloyd, Professor Sayre and I are the only survivors of the 1884 meeting. Evidently, A. PH. A. past presidents have a long tenure of life.

Hugo Kantrowitz informs me to-night that he also attended the Milwaukee meeting.

The A. PH. A. was but thirty-two years old in 1884 and the attendance small compared with recent, annual meetings but at least seventeen of those present in Milwaukee had been or subsequently became presidents of the association.

The ideas which animated them have guided and controlled many in pharmacy.

Those just named are only a few of the many A. PH. A. members who have lit with undying luster the history of our calling.

This should not be surprising, for the A. PH. A. is as broad as all Drugdom in both organization and purpose. It draws membership from every feature of the calling. Among those serving as president have been retailers, wholesalers, manufacturers, chemists, professors and last but not least ye editors.

I am tempted, yes, strongly tempted to at least enumerate some of those who are still with us and active—Men who not only love pharmacy but whose whole hearts and souls are in pharmacy.

I hesitate because I do not know where to begin and I fear I would not know when to stop.

It is a long call from to-day back to the meeting in New York City in 1851 which resulted in the organization of the A. PH. A. in Philadelphia, one year later. My heart is full of gratitude to those sturdy pioneers, our earnest, struggling, self-sacrificing fathers in pharmacy.

They bequeathed to us of a younger generation the fruits of their labors. They smoothed for me the pathway of a pharmaceutical career which I began in 1877.

To those who took part in this initial meeting, seventy-four years ago, belongs the glory of having set in motion the great movement which resulted in desirable pharmacy laws, state associations, the N. A. R. D., the A. C. P. F., N. A. B. P.,

Drug Trade Conference, the improved U. S. P., the N. F., the Pharmaceutical Syllabus and many other paramount accomplishments.

To you who are young in pharmacy and likewise to us who are far past the threshold of life the A. PH. A. gives a heritage. Those who organized the A. PH. A. thought in terms of future needs.

The opportunities of the present are bent toward pharmaceutical research, the A. PH. A. Recipe Book, A Digest of Comments on the U. S. P. and N. F. and that most worthy and ambitious project, the Pharmacy Headquarters Building.

It is the duty of every one of us to strive to promote true pharmacy. The headquarters movement permits all to do in accordance with their ability and desire.

Here is the time and place to bring out the best that is in us without a conflict between the ideal and the material.

The Remington Medalist is selected by the surviving past presidents of the A. PH. A.

They constitute a living committee of living men, which has now made six awards.

A new member is added each year and the expectancy of life suggests the annual passing away of a member.

The personnel must change yearly. Thus, it is a living committee, ever growing but maintaining a constant of about twenty. At the present time, eighteen is the number.

The members are scattered far and wide and vary in their special interest in pharmacy.

Still they have had the common experience of the A. PH. A. presidency. They all have that professional ability so desirable in judging professional ability.

The plan of award is rather unique but practical and proper.

It is the idea of giving such a medal and in the name of Remington that is a concrete expression of the wide judgment, generous act and far-reaching power of the New York Branch of the AMERICAN PHARMACEUTICAL ASSOCIATION when it provided the Remington Fund.

The Joseph Price Remington Medal was established as a token of recognition of the life and work of a man with a broad mind and vast experience in pharmacy.

One who succeeded as Professor of Pharmacy in the Philadelphia College of Pharmacy the Father of American Pharmacy, William Procter, Jr.

Remington died, January 1, 1918. How might his eyes have glistened had he seen himself as we to-night, after seven years, see him in larger stature, with fuller purpose! Remington had a satisfactory vocational success. He desired and planned to live on far beyond the Biblical "three score years and ten" but the power of events is greater than the personal will.

But Remington does live in the minds and actions of many of us. The mortal touch which we have had will die with us but his work and influence will pass on unto future generations through many agencies.

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A REVIEW OF THE PRINCIPAL EVENTS IN AMERICAN MEDICINE.*

BY JOHN URI LLOYD.

INTRODUCTION.

OCCASIONALLY it becomes desirable to contrast conditions of the past with those of the present, connecting, in a comprehensive way, problems involving changes that come with the passing years. In such as this, one not actually involved, may, for certain purposes, be better qualified than an academic or collegiate authority who, without personal experience, studies a problem in a scholarly manner relying upon literature past and present.

On the other hand, a participant in the struggle may, if he permits himself to be personally involved in partisan rivalries, by reason of this very fact, labor under disadvantage because of unconscious, inbred cliquishness from which it is difficult to disentangle himself. Hence he too needs exert every effort to avoid one-sided views or self-prejudice.

The writer of this article, believes that by reason of both past and present affiliations with leaders in pharmacy and practitioners of medicine in the various sections, he should be qualified to fairly judge, at least concerning certain phases of the problem. Trusting that, although of pronounced views concerning therapeutic problems, he can reason impartially, he presumes to accept the responsibility and to present herewith a study of Domestic Medicine problems of the past and connect them with the present in a manner that he hopes may be of professional service.

He should announce, however, that the subject is not of his own selection, but is that of the late lamented Dr. Martin I. Wilbert, between whom and the writer various phases of the problem have been several times discussed, the last, and it may be added conclusive interview being at the meeting of the AMERICAN PHARMACEUTICAL ASSOCIATION in Atlantic City, September, 1916. In the opinion of Dr. Wilbert, as advocated by himself, an article prepared by the essayist so as to bring to the medical profession, generally, and pharmacists as well, a record of the subject past, connecting it with the present duty of both the physician and the pharmacist, illustrative of their responsibility in the care of the people, is now of growing as well as of vital importance. Dr. Wilbert hoped that the article might be utilized by him to introduce to and through the American Medical Association a systematic plan he had formulated for the benefit of the people and the professions of medicine in general.

It was mutually agreed that the ultimate object of all scholarly effort in medicine, and in pharmacy as well, whether through society processes or through personal effort, is the health of the public. That the prevention of disease by the advice and personal touch of the physician, as well as the care of the family in the absence of the physician, is a duty that every member of all sections of the American medical profession owes to both the cause of medicine and to society. That if this object be accomplished, the people need gratefully grant to the professions of both medicine and pharmacy a debt of gratitude, as well as to one and all such contributors a generous living return.

*Presented before Section on Historical Pharmacy, A. PH. A., Buffalo meeting, 1925. Paper was written in 1916.

Dr. Wilbert stated that he had become assured that the section of medicine (Eclectic) through which the writer of these lines had long devoted himself to the furthering of the general cause, and with whose practice as well as ideals he had for decades been in close touch, had accomplished much by reason of their original methods of home service. At the request of Dr. Wilbert particular stress should be given to the history and accomplishments of this Section of American Physicians in this connection, especially regarding their processes of procedure, a request I have endeavored to fulfil.

The unfortunate death of Dr. Wilbert disturbed his plans (this manuscript having been completed but not delivered to him) which, as has been said, had been instituted according to his directions to be presented by a committee of which he was a part, at the (then) coming meeting of the American Medical Association. In this connection it may be stated that Dr. Eggleston, of that committee, wrote me personally concerning the paper and that my reply was to the effect that inasmuch as neither of us knew the details of Dr. Wilbert's plans, it seemed to me as though, in prudence, we should let the matter rest.

JOHN URI LLOYD.

PART I.

DOMESTIC MEDICINE.

In times gone by (within a reasonable period at least), licensed physicians generally agreed that to write on medical topics for the people, was to commit a breach of medical ethics. This opinion was not, as so many believed, in order to aggrandize the physician, but in an altruistic spirit to discourage the people in indiscriminate and illogical application of methods of self-medication that might at times be harmful, sometimes perhaps criminal.

It was accepted by altruistic members of the profession that the systematic practice of therapeutics should therefore be restricted to parties qualified in anatomy, surgery, and physiology, as well as those educated especially in medicine, an accomplishment that could not be attained by the people as a whole. Consequently, many, perhaps the majority of the early professional publications concerning medicine, were prepared for the exclusive use of physicians and such were written by physicians. These necessarily employed technical terms, unintelligible to laymen as a class, concerning both remedies and diseases. Anatomical as well as other scientific definitions were necessarily out of their province. To offer such strictly professional literature to the laity, would in their opinion, have been either useless or harmful, possibly both. And yet when this very sane process of reasoning and action was conservatively applied it gave an opportunity for sinister attacks on the profession.

We find in Europe at an early date a flood of domestic publications written by more or less irresponsible persons giving well meant but yet most unbalanced advice to those who, sufficiently educated to read, were yet not qualified to comprehend the subject as a whole.

These publications became finally so numerous as to lead a few talented physicians and reputable pharmacists to prepare, directly for the people, more balanced as well as serviceable publications. Among these we need mention a

few only, confining ourselves to a selection that may well be regarded as forerunners to American therapeutic activity.[1]

Possibly the most celebrated of English domestic medical publications in this field, were those of Dr. Nicholas Culpeper (1616–1654) and of Dr. Wm. Buchan (1729–1805) both of which passed through numerous editions. Let us first consider Culpeper[2] who, for quaint expression and neat satire possessed a most peculiar fascination.

Culpeper forcibly expresses his opinion of the "Medical Faculty," as follows: (English Physician, 1790)

> As for the College of Physicians, they are too stately to learn, and too proud to continue. They say a mouse is under the dominion of the Moon, and that is the reason they feed in the night; the house of the Moon is Cancer; rats are of the same nature with mice, but they are a little bigger; Mars receives his fall in Cancer, ergo, Wormwood being an herb of Mars, is a present remedy for the biting of rats and mice.

The erratic suggestions and ill-balanced dosage, as well as the ever-present superstitions carried in this and other popular books of that date, unquestionably largely influenced Dr. Buchan, a Fellow of the Royal College of Physicians, Edinburgh, to prepare (1772) for the laity his "Domestic Medicine," whose European title, (replaced, in one of the American reprints, by "Every Man His Own Doctor"), was as follows:

> "Domestic Medicine, or a Treatise on the Prevention and Cure of Disease by Regimen and Simple Medicines, by A. P. Buchan, M.D., of the Royal College of Physicians, Edinburgh, and Physician to the Westminster Hospital, to which is added a Family Herbal."

In this publication Dr. Buchan refers to "the impudence of those daring quacks,"[3] as follows:

> Any one who attends to the conditions governing secretions, will be astonished at the impudence of those daring quacks, who pretend to find out diseases and prescribe to patients from the bare inspection of their urine. These imposters, however, are very common all over Britain, and by the amazing credulity of the populace, many of them amass considerable fortunes.

How Dr. Buchan viewed the subject of enlightening the people concerning home treatment by simples, and the care of the patient as directed by the physician, and his fear of the effect his publication might have upon himself, professionally, is shown by the following:

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[1] The medical literature used by the early American colonists, as well as the first American textbooks on medicine and pharmacy, in the colleges of medicine, were mainly furnished by authors in Great Britain. Consequently, although Continental Europe is rich in domestic medical publications, the present paper prepared in a specific purpose, needs consider only those of England.

[2] This physician was the son of Sir Thomas Culpeper, Bart. He studied in the University of Cambridge, and later became an apothecary. Tinctured with the then prevailing belief in astrology as applied to both disease and remedy, his works everywhere abound in astrological-physical discussions, as shown by the few extracts we introduce. His most popular works were "The English Physician," (1653) and "The Complete Herbal," (1653). Dr. Culpeper died in 1654.

[3] This essayist remembers when "irregulars" who tasted urine to see if it was *sweet* were by physicians denominated by a very vulgar term. This antidated the "sugar test" of Fehling.

When I first signified my intention of publishing the following sheets, I was told by my friends it would draw on me the resentment of the whole Faculty. As I never could entertain such an unfavorable idea, I was resolved to make the experiment, which indeed came out pretty much as might have been expected.

Its reception is thus described:

Many, whose learning and liberality of sentiments do honor to medicine, received the book in a manner, which at once showed their indulgence, and the falsity of the opinion, that *every Physician wishes to conceal his art;* while the more selfish and narrow-minded, generally the most numerous in every profession, have not failed to pursue both the book and its author with every species of *persecution.*

Part I of Buchan's "Domestic Medicine," *Or the General Causes of Diseases,* is so admirably written, so balanced in view and expression, so temperate in its advice, as to lead us to believe that, with a few alterations, omissions and additions, it would to-day (excluding medication), if issued under representative authority, serve an excellent purpose. Surely the medical profession would not now resist giving to laymen advice such as is found here. Let us quote:

In the treatment of diseases, I have been peculiarly attentive to regimen. The generality of people lay too much stress upon Medicine and trust too little to their own endeavors. It is always in the power of the patient or of those about him, to do as much towards his recovery as can be effected by the physician. By not attending to this, the designs of medicine are often frustrated; and the patient, by pursuing a wrong plan of regimen, not only defeats the Doctor's endeavors, but renders them dangerous. I have often known patients killed by an error in regimen, when they were using very proper medicines. * * * * * To render this book more generally useful, however, as well as more aceptable to the intelligent part of mankind, I have in most diseases, besides regimen, recommended some of the most simple and approved forms of medicine, and added such cautions and directions as seemed necessary for their safe administration. It would no doubt have been more acceptable to many, had it abounded with pompous prescriptions, and promised great cures in consequence of their use, but this was not my plan; I think the administration of medicines always doubtful, and often dangerous, and would much rather teach men how to avoid the necessity of using them, than how they should be used. Several medicines, and those of considerable efficacy, may be administered with great freedom and safety. * * * * * Poor people, when any of their family are taken ill, run directly to their rich neighbors for cordials, and pour wine, spirits, etc., into the patient, who perhaps never had been accustomed to taste such liquors when in health. If there be any degree of fever, this conduct must increase it, and if there be none, this is the ready way to raise one. Stuffing the patient with sweetmeats and other delicacies is likewise very pernicious. These are always harder to digest than common food, and cannot fail to hurt.

Nothing is more desired by a patient in a fever than fresh air. It not only removes his anxiety, but cools the blood, revives the spirits, and proves every way beneficial. Many patients are in a manner stifled to death in fevers for want of fresh air; yet such is the unaccountable infatuation of most people, that the moment they think a person is in a fever, they imagine he should be kept in a close chamber, into which not one particle of fresh air must be admitted. Instead of this, there ought to be a constant stream of fresh air into a sick person's chamber, so as to keep it moderately cool. Indeed its degree of warmth ought never to be greater than is agreeable to one in perfect health.

In his efforts (1781) in the guidance and warning of the people, Dr. Buchan was assisted by John Savory, a pharmacist and "Member of the Society of Apothecaries, London." His book, "A Compendium of Domestic Medicine: and Companion to the Medicine Chest," (4th edition, 1852), alike recognized the importance of the profession of medicine, and the rights of the people. From the Preface we select as follows:

Upon its first appearance the objects of this work were avowed to be based upon the utility of enabling non-professional persons, who might be situated far from the reach of aid, in cases of necessity, obtaining in a clear, distinct and speedy manner, information regarding the effects and uses of the substances employed in medicine, and the best mode of combining them for administration in the various diseases in which they have, by long and well established experience, been found useful; as well as to distinguish such diseases as are dangerous in their nature, and rapid in their progress, in order that proper assistance may be obtained, without allowing that delay to take place which is so frequently the cause of many fatal results. These objects, it is satisfactory to find, have been realized, and they have been endeavored to be achieved by divesting the subject as much as possible of technical and scientific phraseology, and by rendering the work intelligible to those who had not in any manner made the science of medicine their study.

After the third edition of his book Savory adds:

The very favourable manner in which this little work has been received by the public, and the commendations it has met with even from members of the Medical Profession, have rendered a FOURTH edition necessary.

In 1852 appeared in London a volume by Spencer Thomson,[1] M.D., titled, "A Dictionary of Domestic Medicine and Household Surgery." A fragment of the Preface, as follows, clearly indicates the aim of the author:

That works professing to afford popular information on medical subjects, may thoroughly answer the purpose for which they are designed, one especial point requires ever to be kept in view—the information given must be safely usable by those who are put in possession of it. It is an objection frequently adduced against such works, that they place a little dangerous knowledge in the hands of the public, in a form so apparently simple, as to make it a source rather of evil than of benefit; and, undoubtedly, the allegation has in some respects been correct. But is it necessary, in preparing a work on domestic health, to incur this hazard? I think not. For without entering upon that difficult ground which correct professional knowledge, and educated judgment, can alone permit to be safely trodden, there is a wide and extensive field for exertion, and for usefulness, open to the unprofessional, in the kindly offices of a *true* Domestic Medicine; the timely help and solace of a simple Household Surgery, or better still, in the watchful care, more generally known as "Sanitary Precaution," which tends rather to preserve health than to cure disease. "The touch of a gentle hand" will not be less gentle, because guided by knowledge, nor will the *safe* domestic remedies be less anxiously or carefully administered. * * * * The information upon these points, given in a popular work, can scarcely be too full or too accurate. In the requirements of Household Surgery, or of sudden emergency, such as poisoning, burning, etc., the question is, "What must be done?" Generally speaking, little or no skill is requisite to determine the nature of the case, or of the injury, which is often too apparent, the anxious question "What must we do?" is that which calls for answer; and if, sometimes, it happens that the exact nature of the accident be not sufficiently evident, that is no reason why knowledge on the subject generally, aided by common sense, may not do much to relieve. Life may be saved, suffering may always be alleviated. Even to the resident in the midst of civilization, the "knowledge is power" to do good; to the settler and the emigrant, it is invaluable.

Little fault can be found with either text or advice. In order to show that Dr. Thomson comprehended the danger of indiscreet self-medication, we reproduce, as follows:

There is, however, a vast difference between the management of real disease and of ordinary ailment—between endeavouring to strike at the root, or only to relieve the symptoms. Any unprofessional man, or woman either, in this kingdom, who with all facility that there is

[1] This work as well as the author were often confused with the Samuel Thomson of lobelia fame, and his publications during the first half of the last century. J. U. L.

for procuring skilled advice, ventures to take the medical management of a case of real illness, acts most unwarrantably; but there are numbers of lesser ailments, many of the more painful incidents and symptoms, simply and easily removable by means which all may employ, and with which it is most important that all should be acquainted, while the parent may use to the child, or the pastor recommend to his parishioners, without fear.

That Dr. Thomson, as had Dr. Buchan, foresaw attacks from the medical profession, is also recorded:

I know well what is said by a few, about injuring the medical profession, by making the public their own doctors. Nothing will be so likely to make "long cases," as for the public to attempt any such folly.

That he appreciated one of the great problems yet confronting the practice of medicine, and which he thought could be controlled if the physician took the people into his confidence, is evident from the following:

People of moderate means—who, as far as medical attendance is concerned, are worse off than the pauper—will not call in and fee their medical adviser for every slight matter, and in the absence of a little knowledge, will have recourse to the prescribing druggist, or to the patent quackery which flourishes upon ignorance, and upon the mystery with which some would invest their calling.

And that he accepted "professional quackery" as being furthered by *home ignorance* is also apparent:

"And not patent quackery alone, but professional quackery also, is less likely to find footing under the roof of the intelligent man, who, to common sense and judgment, adds a little knowledge of the whys and wherefores of the treatment of himself and family."

The passages quoted (when coupled with subsequent text), show clearly why early American medicine paralleled that of England. The settlers in the New World brought with them Culpeper and Buchan and other English domestic publications. They also brought the methods of heroic medication then approved and practiced by authority, known then as "Licensed Physicians." In England, the conciliatory efforts of such as Buchan and Thomson, had largely failed. The conflict between the people and the medical profession, transplanted from abroad to primitive America, was in the New World, intensified.

PART II.

DOMESTIC AMERICAN MEDICINE.

In 1813, an itinerant preacher, Peter Smith, issued to the people a quaint publication, lacking the scholarly tone of Culpeper, titled, "The Indian Doctor's Dispensatory, being Father Smith's Advice Respecting Diseases and Their Cure." This volume, often referred to in early American literature, was widely distributed. The trend of the author's mind is pictured, even in the copyright, as follows:

"The Indian Doctor's Dispensatory, being Father Smith's advice respecting diseases and their cure, consisting of prescriptions for many complaints; and a description of medicines, simple and compound, showing their virtues and how to apply them. Designed for the benefit of his children, his friends, and the public, but more especially the citizens of the western parts of the United States of America. By Peter Smith, of the Miami country. Men seldom have

wit enough to prize and take care of their health until they lose it. * * * And Doctors often know not how to get their bread deservedly until they have no teeth to chew it."

This "Dispensatory" was introduced as follows by its eccentric author:

"The author would notify the purchaser that he puts the price of one dollar on this book of advice, well knowing that 75 cents would be enough for the common price of a book of its size. He is conscious that propriety, perspicuity and brevity will be found marked on every piece—and if so, the shorter the better.

"But those who do not chuse to allow him 25 cents for his advice, may desist from the purchase. He conceives that these advices are calculated to assist every citizen in the preservation of his health, and his recovery if diseased; so that by attending to them, he may easily receive 30, 60, or an 100 fold for his dollar; by which he may also meet the wished for assistance set forth in simples and preparations, that will be in his own power."

The publication throughout was based upon the following principle:

"It stands demonstrated to me, that there are but two radical disorders (see Introduction, chap. 2) consequently there need be only two classes of medicine."

The compounds of Dr. Smith, as well as his simples, were described by him in language not less "simple," his book being evidently intended for the use of pioneer settlers, who as a rule, had but little systematic education. This is well illustrated in his formula for making "Eye-Water," as follows:

EYE-WATER.

FIRST PREPARED BY DOCTOR ELIJAH REEDER.

To make 3 gills—take a spoonful heaped up of white vitriol, and the same quantity of common salt, calcine them together on copper, or a piece of earthen, on coals, stirring it with a stick, until it becomes a grey powder; then put it into a bowl, and add to it three gills of rain water. Strain it through paper or a fine rag two or three double—then add two tablespoonfuls of white sugar and a lump of blue-stone, as big as a large grain of Indian corn, and bottle it for use. Three times the quantities will make a bottle, or quart. Remember, no iron or pewter is to be employed in the process. This eye-water will keep good for years, but beware of frost, lest you loose your bottle.[1] This eye-water cures the western country sore eyes, which are scarcely, if ever relieved by the old-eye-waters. This eye-water I have kept and used these fifteen years, with the greatest success, and without a single complaint of its doing hurt.

Innumerable domestic "cure-all" formulas such as this, together with an awakening of the people concerning certain objectionable processes of the medical profession, culminated about the time of the death of George Washington. But as yet there seemed to be no leader capable of organizing the opposing forces. The year 1832, however, was marked by the appearance of the first edition of an American domestic publication, than which no other book in the line of medicine had ever a greater sale, or a more enthusiastic reception from the American public. This book, from the dogmatic empiricist, Samuel Thomson, was titled, "A Narrative of the Life and Medical Discoveries of Samuel Thomson." It is also frequently referred to as "Thomson's New Guide to Health, or Botanic Family Physician," as well as "Thomson's Narrative." In this, Thomson assailed everything "regular," attacking viciously the licensed physician, especially those with

[1] Very exquisite is the irony, to which be it said "Dr." Smith was not averse as shown by other passages in his book.

college training, to whom he refers as "fashionable doctors."[1] The following quotations from the Preface of his book, are typical:

> In different ages of the world, the medical faculty have been very prolific in forming systems of the theory and practice of medicine. One man builds up a system, for another who comes after him to pull down, who erects one of his own; which is followed for a time, and then is supplanted by another. They have gone on in this way, almost every age producing a new system, to the present time; each one pronounces the other to be wrong, they certainly cannot all be right, and the most natural conclusion is, that they are all wrong. * * * * * It is readily admitted by the most distinguished men in the profession, that there is no art or science so little understood, and miserably conducted, as that of medicine.
>
> The way to become a fashionable doctor at the present day, is to spend three or four years in what they call reading physic, when they receive a degree and a diploma from some medical society. * * * * * This is spent in learning the latin names of the different preparations of medicine, according to the plan adopted by the faculty, as also of the different parts of the human body, with the names, colors, and symptoms of all kinds of disease, divided and subdivided into as many classes and forms as languages can be found to express; and sufficient knowledge of the nature of medicine to know how much poison can be given without causing immediate death. With these qualifications and a little self-importance, they commence their medical career, as ignorant of what is really useful in curing disease, as though they had been shut up in a cloister all the time.

Thomson's opinion of the art of medicine, as connected with both the physician and the pharmacist, may be summed up from the Introduction to his "Guide to Health":

> A sick man is often obliged to risk his life where he would not risk a dollar; and should the apothecary or his apprentice make a mistake, the sick man cannot correct it, and thus is exposed to receive an instrument of death, instead of that which would restore him to health, had he known good medicine.

Thomson in his opposition to the physicians of his day, even goes so far as to attack the Pharmacopœia of the United States, just issued (1820), as follows:

> In the new Pharmacopœia, got up lately by the medical societies in this country, an entire new arrangement is made, and new names adopted, which is to be revised every ten years: this will completely keep the people in ignorance of the medicine they use, when prescribed by the faculty.

These combative processes of Thomson, coupled with the fact that he patented a method of medication, issued diplomas for practicing this patent process, to the people generally, and used, indiscriminately and indiscreetly, such energetic materials as lobelia and capsicum, finally made for Thomson a bed of thorn which, by the dogmatic old man, wrapped in his enthusiasm and antagonisms, was accepted as a couch of roses. His "patented" method of medication, which he sold freely to whomsoever had the small amount of money (fifteen dollars), required to purchase the same, and like objectionable features of his practice, instilled into the American medical profession a lasting hatred of the word "patent" in connection with medicine. Indeed, until a very recent period, no distinction has been drawn by either the people or the profession, between secret remedies

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[1] One distinction between the early Thomsonians and the Eclectics was in that Thomson's followers opposed colleges of medicine, whilst the Eclectic believed in teaching all fundamentals of science. J. U. L.

and "patented" substances, many of which, are strictly professional and now in general use.

The Thomsonian practice of medicine was introduced into England, but without credit to either Thomson or his publications, by a physician named Coffin, a graduate of a medical school in London, who in 1830 came to America. During seven years' stay in America, spent mainly in Troy, New York, Dr. Coffin became a convert to Samuel Thomson's theories and an employer of his processes. Returning to England in 1837, he established himself as a "Member of the Friendly Botanic Society of Great Britain," and issued a book, "Coffin's Guide to Health," based largely on Thomsonianism, though no mention is made throughout the entire work of either Thomson, his publications or his practice. That Coffin believed in Thomson's heroic methods and his peculiar American medicines, is demonstrated by the following "certificate" published by him, from a man "cured" by the use of his remedies:

> During my illness I took sixty-two emetics of lobelia inflata, four pints of tincture of lobelia, six pounds of capsicum pepper, and three hundred pints of medicine.

Coffin even out-classed Thomson in his attacks on the medical profession. For example:

> Common sense would say let there be free trade in physic all over the world: let no man's health suffer, humanity would suggest; and nature cries aloud to all her children, behold the remedy you seek is here.
>
> Suppose every man of genius required a diplom before he could be allowed to confer a benefit on society: if such had been the case, Stephenson, who was once a working collier, but whose name and fame, are destined to be immortal, would never have made a railroad, if he had only read and studied such works as adorn the shelves of colleges. Endowed with a strong mind, he gave scope to his own intellect, and not a single doctor interfered; but had their interest been periled by his discovery, he would have been dubbed a quack, and dealt with accordingly. * * * * * Why is England exalted as the asylum of the oppressed, and the hope of the world, if we dare not, as free, magnanimous, and independent people, think and act for ourselves? Let us, at least, throw off the yoke of *medical despotism*, and when the life and health of a whole people are at stake, let us nobly resolve to emancipate society from this gangrene which monopoly has cast around it.

Still another publication that should be mentioned as relating to Thomsonian literature, was one issued in America, titled, "The Experienced Botanist or Indian Physician."[1] This was the work of Dr. J. W. Cooper, whose ideals are exposed by the following extract from his Preface:

> That the present privileged system of medicine, with all its modern improvements, is, in theory, still imperfect, and in practice often productive of disastrous consequences, I need not here revive the complaint of the thousands and tens of thousands who, after having suffered many things from physicians, and having spent all their living upon them, were nothing bettered, but rather grew worse. I have heard the widely extended complaints of human sufferers, smarting under the hand of systematic cruelty, wasting away by poison administered as medicine, and pining in despair, when the last penny has gone as a fee to rich practitioners. In view of such facts, did I conceive no desire to produce a reform, I should be unworthy the name of a man.

Indicative of the fact that American domestic medical literature was occasionally favored even by the learned, we have "The Family Adviser" (1833), by

[1] This book was published in Lancaster, Pennsylvania, in 1840. Here, too, was published, during the Revolution, the first American Pharmacopœia.

Henry Wilkins, M.D., "One of the Trustees of the University of Maryland." A brief quotation from this is sufficient:

We find our old books filled with inspissants, attenuants, and concoctants, to alter the state of the fluids; anti-spasmodic and sedative medicines, stenic and astenic diseases, indirect and direct debility, the former of these terms used (*vis.*, indirect debility) to express an inundation as from an overflowing tide, prostrating all before it. If with all this jargon we take into consideration, that the theory and language of chemistry was altered full as often, we shall have some idea of a medical consultation when pupils of each school met together: for there were always some who retained their old theories and language too; and should this babel-like language continue, it may be necessary to give physicians a course of instruction at a deaf and dumb school, or at the university of Lagado, that they may understand each other (when they come together) by signs at least.

We should not neglect to state that in the height of Thomson's fame, as well as later, appeared in America a number of "Thomsonian" family recipe books. Among these may be named "A Book of Health," or "Thomson's Theory and Practice of Medicine," by F. B. Robertson, T. P. (Thomsonian Practitioner) and Silas Wilcox, T. P. From this we extract:

TO THE FARMER, THE MECHANIC, AND THE NON-PROFESSIONAL READER IN GENERAL. This work is designed for you. It has been taught, and believed that common people—nature's real nobility—have not a proper right to study medicine. That is utterly false. Would you be slaves? No! Arouse, then, to your sense of reason and humanity, and take the charge of your own bodies. Your abilities are equal, yea, better, for the task, than the faculty. Dr. Rush says "to suppose the talents of those who can learn to *preserve health*, by the cultivation of grain, and the baking of bread, are not equal to the task of *restoring health*, is to question the goodness of the DEITY." Yourselves do know that rejecting the physician has sometimes saved life and limb. We know it has hundreds. Be your own physician! No one can supply your place.

Many other publications were of like import, and need not be considered in detail, or even mentioned by title. And yet we cannot forbear quoting from "The Planter's and Mariner's Medical Companion," by James Ewell, M.D., issued about the date of "Peter Smith's Dispensatory," 1813:

A PUBLICATION, like this, cannot but be exceedingly useful to all, and especially to those who live in the country, or who go to sea, where regular and timely assistance cannot always be obtained.

Among the many and great services, which may be rendered by such a book, we may fairly state its tendency to prevent that dangerous officiousness of ignorant persons, as also, that equally pernicious neglect of the patient, at the onset of the disease, whereby so many lives are lost. * * * * *

How many fond mothers have hung distracted over their children, strangling under the *croup* or swollen with the poison of *serpents*, when the former might so easily have been cured by an emetic, and the latter by caustic volatile alkali.[1] But it were an endless task to enumerate all the heart breaking tragedies, that have taken place in families, merely for the want of the appropriate remedies, of sudden and alarming disease. It were therefore a god-like act in all persons, in tolerable circumstances, to keep a medicine chest, not only for the benefit of their own families, but also of their sick and indigent neighbours, who often suffer, and sometimes perish, for want of proper medicines seasonably administered.

In 1835, American domestic medicine was enriched in Philadelphia by a publication titled "Carpenter's Family Medicine Chest Dispensatory." The author was a Philadelphia pharmacist, and very intimate with physicians in good

[1] Ammonia. J. U. L.

standing in his home city. His object was to furnish to the people medicine chests for domestic use. These he offered in five different degrees of completeness. Carpenter, as had John Savory, of England, already mentioned, considered himself both an ally of the physician, and a friend of the people, arguing therefor in a more balanced way than had before prevailed, as shown by the following:

> It is of essential use to every man, to make himself acquainted, as far as practicable, with the diseases to which he is liable, and the most simple means of guarding against and checking the progress of disease. It is not expected that he should become proficient in the arduous and profound science of medicine, or to treat with success the diversified and complicated diseases to which the human frame is liable. This would require years of study, and an unremitting application to the subject. It is, however, of essential importance, and within the reach of all who are disposed, to acquire at least some acquaintance with the symptoms of the diseases of common occurrence, and of the structure and functions of the human body; and to become familiar with the properties and doses of the various remedies which are made use of to preserve and restore health. * * * * * A physician should on all occasions be preferred and consulted where it is practicable; but there are occasions of very frequent occurrence, where the knowledge of individuals could be called into immediate and successful operation before a physician could be reached. * * * * * When it is for a moment considered our liability to accidents from the most trifling causes, how suddenly disease sometimes occurs, and moreover the difficulty often experienced in procuring MEDICAL AID at the instant it may be required, it becomes, no doubt, a matter of surprise how so important an article as a *Medicine Chest*, with a proper assortment of MEDICINES, should have been overlooked, when other articles, far less useful, are considered as indispensables.

Carpenter refers to the Faculty of the University of Pennsylvania as commending his preparations. This allusion was not resisted, so far as we know, and his processes may be considered as having been recognized by "Authority." He was a competent apothecary, and devised many useful compounds of that period. Indeed, he claimed to have perfected, under the general direction of Dr. Jackson, a celebrated physician of Philadelphia, the once-famous "Jackson's Cough Syrup."

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To Sum Up.—Few will deny that, up to the middle of the last century, medicine, both domestic and professional, whether in Europe or America, was in an exceedingly unsatisfactory condition. It is furthermore evident that neither the profession nor the people seemed able to overlook personal differences, and to accept that the cause of each was the common cause of humanity. Let us next consider the epoch in American therapeutics wherein the "Eclectic" physician became a factor, and to which the writer of these brief researches is asked by Dr. Wilbert to devote particular care. The ideals and history of this typical "American School of Medicine" seem now to be of increasing importance to the professions of medicine and pharmacy as a whole.

(*To be continued in July Issue*)

DISCOVERY OF THE VALUE OF IODINE FOR GOITER DUE TO ERROR IN PRESCRIBING.

Dr. Armand Trousseau is said to have prescribed iodine in error for a goiter patient. He reported the error and also the success of the treatment. Although Trousseau gave his discovery to the world, little if any use of the treatment was made until after sixty years. Dr. Trousseau was well and favorably known as practitioner, professor and author—he wrote "Traite de thérapeutique et de matière médicale."

THE NEW U. S. PHARMACOPŒIA, TENTH REVISION (U. S. P. X).

CHANGES AND LISTS OF NEW ADMISSIONS AND NEW NAMES.*

Compiled by Horatio C. Wood, Jr., M.D.

NEW ADMISSIONS TO THE U. S. PHARMACOPŒIA.

A word as to the method used in selecting the drugs which are described in the Pharmacopœia may be of interest to the members of the medical profession. The procedure adopted in the Tenth Revision, which differed somewhat from that of earlier editions, was briefly as follows: Each drug and preparation was first carefully considered by the Sub-committee on Scope who reported their findings to the General Committee of Revision. The principle governing the deliberations of the Sub-committee was to admit only those substances for which there was at least a reasonable amount of evidence of therapeutic value—except such agents as are used for pharmaceutical or flavoring purposes. Any objections to the findings of the Sub-committee on Scope were referred to a special committee of all the medical members of the Committee of Revision. The decision of this special committee was final. It was hoped by this method of selection to make the U. S. Pharmacopœia not only a book of legal standards for substances used in the treatment of the sick, but one which reflects the best practice of the American Medical Profession.

LIST OF NEW ADMISSIONS.

Acidum Acetylsalicylicum—Acetylsalicylic Acid. Synonyms and Brand Names—Aspirin; Empyrin, etc. Uses—Analgesic, antirheumatic. Dose—Five grains (0.3 Gm.).

Acidum Acetyltannicum—Acetyltannic Acid. Synonyms and Brand Names—Acetannin; Diacetyltannic Acid; Tannigen. Uses—Astringent for diarrhœa. Dose—Ten grains (0.6 Gm.).

Æthylis Aminobenzoas—Ethyl Aminobenzoate. Synonyms and Brand Names—Benzocaine; Anesthesin. Uses—Local Anesthetic (insoluble). Dose—Five grains (0.3 Gm.) for gastric ulcer.

Æthylis Chaulmoogras—Ethyl Chaulmoograte. Synonyms and Brand Names—Chaulmoogra Oil Esters; Chaulmestrol. Uses—Leprosy. Dose—Fifteen minims (1 cc.).

Albumini Tannas—Albumin Tannate. Synonyms and Brand Names—Albutannin; Tannalbin. Uses—Astringent for diarrhœa. Dose—Thirty grains (2 Gm.).

Amidopyrina—Amidopyrine. Synonyms and Brand Names—Pyramidon. Uses—Analgesic and Antipyretic. Dose—Five grains (0.3 Gm.).

Argento-Proteinum Fortius—Strong Silver-Protein. Synonyms and Brand Names—Protargin Strong; Protargol; Proganol; Protargentum; etc. Uses—Antiseptic. Although containing less silver it is a more active germicide, and more irritant locally, than the following.

Argento-Proteinum Mite—Mild Silver-Protein. Synonyms and Brand Names—Protargin Mild; Argyrol; Argyn; Cargentos; Silvol; Solargentum; etc. Uses—Antiseptic. Less irritant but less potent than Arg.-Prot. Fort. Dose—Used locally.

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* A pamphlet form of this contribution was prepared for distribution at the Educational Exhibition of Drugs and Preparations of the new U. S. Pharmacopœia, Tenth Revision, held at the annual meeting of the American Medical Association, Atlantic City, N. J., May 25 to 29, 1925, under the auspices of The Philadelphia Branch of the AMERICAN PHARMACEUTICAL ASSOCIATION.

Committee in Charge: Horatio C. Wood, Jr., M.D., Ivor Griffith, Charles H. LaWall, John K. Thum, Ambrose Hunsberger, Arno Viehoever, William J. Stoneback, Adley B. Nichols, Joseph W. E. Harrisson, Ralph L. Calvert, Ralph R. Foran, Harvey P. Frank, Ellen Cawley, Morris Beck, and E. Fullerton Cook, Chairman.

Arsphenamina—Arsphenamine. Synonyms and Brand Names—Arsenobenzol; Diarsenol; Salvarsan; 606; etc. Uses—Antisyphilitic. Dose—Six grains (0.4 Gm.).

Barbitalum—Barbital. Synonyms and Brand Names—Diethylbarbituric Acid; Veronal. Uses—Somnifacient. Dose—Eight grains (0.5 Gm.).

Barbitalum Solubile—Soluble Barbital. Synonyms and Brand Names—Sodium Diethylbarbiturate; Veronal-Sodium; Barbital Sodium; Medinal. Uses—Somnifacient. Dose—Eight grains (0.5 Gm.).

Barii Sulphas—Barium Sulphate. *Never abbreviate this title!* Uses—For making X-ray pictures of alimentary canal.

Calcii Iodobehenas—Calcium Iodobehenate. Synonyms and Brand Names—Calioben; Sajodin. Uses—Same as potassium iodide. Dose—Eight grains (0.5 Gm.).

Carbonei Tetrachloridum—Carbon Tetrachloride. Synonym—Tetrachlormethane. Uses—Anthelmintic. Dose—Forty minims (2.5 cc.). Not to be repeated within three weeks.

Carbromalum—Carbromal. Synonym and Brand Name—Adalin. Uses—Nerve sedative, anodyne and hypnotic. Dose—Eight grains (0.5 Gm.).

Chloramina—Chloramine. Synonyms and Brand Names—Chloramine-T., Chlorazene. Uses—Surgical disinfectant—Its aqueous solution is not identical with Dakin's Solution. Dose—Used locally.

Dextrosum—Dextrose. Synonyms—Crystallized Glucose; Saccharum Amylaceum. Uses—For intravenous injection in shock, hemorrhage, etc.

Dichloramina—Dichloramine. Synonym and Brand Name—Dichloramine-T. Uses—Surgical disinfectant. Dose—Used locally.

Epinephrina—Epinephrine. Synonyms and Brand Names—Adrenalin, Suprarenalin, etc. Uses—Asthma. Local vaso-constrictor. Dose—1/120 grain (0.0005 Gm.).

Fluidextractum Belladonnæ Foliorum—Fluidextract of Belladonna Leaves. Uses—Same as Belladonna. Dose—One minim (0.06 cc.).

Fluidextractum Rhois Glabræ—Fluidextract of Rhus Glabra. Synonym—Fluidextract of Sumac Berries. Uses—Astringent for diarrhœa and sore throat. Dose—Fifteen minims (1 cc.).

Ipomœa—Ipomea. Synonyms and Brand Names—Male Jalap, Orizaba Jalap; Mexican Scammony. Uses—Purgative. Used only for making Resin of Ipomea.

Krameria—Krameria. Synonym—Rhatany. Uses—Astringent. Dose—Fifteen grains (1 Gm.).

Liquor Epinephrinæ Hydrochloridi—Solution of Epinephrine Hydrochloride. Synonyms and Brand Names—Adrenalin Solution, Suprarenalin Solution; etc. Uses—Local vaso-constrictor. Dose—Eight minims (0.5 cc.).

Liquor Sodæ Chlorinatæ Chirurgicalis—Surgical Solution of Chlorinated Soda. Synonyms and Brand Names—Dakin's Solution; Sodium Hypochlorite Solution. Uses—Surgical disinfectant. Dose—Used locally.

Neoarsphenamina—Neoarsphenamine. Synonyms and Brand Names—Novarsenobenzol; Neosalvarsan, etc. Uses—Antisyphilitic. Dose—Nine grains (0.6 Gm.).

Oleum Chaulmoograe—Chaulmoogra Oil. Uses—Leprosy. Dose—Fifteen minims (1 cc.).

Paraffinum Chlorinatum—Chlorinated Paraffin. Synonym and Brand Name—Chlorcosane. Uses—For making Dichloramine Solutions.

Phenobarbitalum—Phenobarbital. Synonym and Brand Name—Luminal. Uses—In epilepsy and as somnifacient. Dose—One-half grain (0.03 Gm.).

Phenylsulphonphthaleinum—Phenolsulphonphthalein. Synonym—Phenol Red. Uses—Test for kidney function. Dose—One-tenth grain (0.006 Gm.).

Procainæ Hydrochloridum—Procaine Hydrochloride. Synonym and Brand Name—Novocaine. Uses—Local Anesthetic.

Quinidinæ Sulphas—Quinidine Sulphate. Uses—In auricular fibrillation. Dose—Five grains (0.3 Gm.) Caution!

Quininæ Aethylcarbonas—Quinine Ethylcarbonate. Synonym and Brand Name—Euquinine. Uses—Tasteless form of quinine. Dose—Tonic, one and a half grains (0.1 Gm.); antimalarial, fifteen grains (1 Gm.).

Resina Ipomœæ—Resin of Ipomea. Synonym—Resin of Mexican Scammony. Uses—Purgative—Replaces Scammony Resin. Dose—Three grains (0.2 Gm.).

Rhus Glabra—Rhus Glabra. Synonym—Sumac Berries. Uses—Astringent. Dose—Fifteen grains (1 Gm.).

Sodii Biphosphas—Sodium Biphosphate. Synonyms—Acid Phosphate of Sodium; Sodium Acid Phosphate; Monobasic Sodium Phosphate. Uses—To increase acidity of urine. Dose—Ten grains (0.6 Gm.).

Spiritus Frumenti—Whisky.

Spiritus Vini Vitis—Brandy. Synonyms—Spiritus Vini Gallici—Cognac.

Thyroxinum—Thyroxin. Active principle of Thyroid Gland. Uses—Same as Thyroid. Dose—One hundred and twentieth grain (0.0005 Gm.).

Tincturæ Krameriæ—Tincture of Krameria. Synonym—Tincture of Rhatany. Uses—Astringent. Dose—One fluidrachm (4 cc.).

NEW NAMES.

In the past, objection has been made to some of the Pharmacopœial names, especially those of synthetic drugs, because of their undue length. The present Committee of Revision has made an effort to overcome this obstacle to the more universal use of official names by the introduction of coined words. Some of the substances described are familiar to the medical profession under trade names; these names, however, cannot be used in an official book because they are the trade-mark property of certain manufacturers.

There are several reasons why physicians should employ official names, even when these are more cumbersome and less familiar. The most important of these reasons is the protection which the use of official terms affords both the doctor and the patient. When a drug is prescribed by a brand or trade-marked name, there is no assurance of quality of the proprietary form of the drug which must be dispensed, except the commercial honesty of the manufacturer. Instances are not lacking where makers of proprietary medicines have altered materially the composition of their remedy without notification to the medical profession. On the other hand, when a drug is sold under an official name, the Federal Food and Drugs Act as well as the laws of many states, requires that the drug must conform to the standards set forth in the Pharmacopœia. The law spreads its aegis of protection over Pharmacopœial names but not over trade-marked names.

In the list of changes given below, attention may be called especially to the ointments of mercury. Formerly the 50 per cent ointment of mercury, employed as a means of systemic administration of this drug by inunction, was known as Unguentum Hydrargyri and a 33 per cent ointment, intended to be used as a local remedy in parasitic conditions of the skin, was known as Unguentum Hydrargyri Dilutum. In order to bring the U. S. Pharmacopœia into harmony with the International Protocol, the name of this latter has been changed to *Unguentum Hydrargyri*, while the form intended for absorption is called *Unguentum Hydrargyri Fortius*. The new ointment of mercury, therefore, is made with a base not intended for easy absorption through the skin, but for its immediate local action, and where the physician desires the constitutional action of mercury he should prescribe *Ung. Hydrarg. Fort.*

Only one preparation has been seriously altered in strength. The Ointment of Yellow Mercuric Oxide (Unguentum Hydrargyri Oxidi Flavi) has been reduced from 10 per cent to 1 per cent in conformity with the customary practice of to-day.

CHANGES IN TITLES.

Old Titles U. S. P. IX.	New titles U. S. P. X.	Popular and English Names.
Acidum Phenylcinchoninicum	Cinchophenum	Atophan
Aqua Aurantii Florum Fortior	Aqua Aurantii Florum	Orange Flower Water
Balsamum Tolutanum	Tolu	Tolu
Benzosulphinidum	Glusidum	Saccharin
Betaeucainæ Hydrochloridum	Eucainæ Hydrochloridum	Eucaine
Chloralum Hydratum	Chloralum Hydras	Chloral Hydrate
Cinchona Rubra	Cinchona	Cinchona Bark
Cinnamomum Saigonicum	Cinnamomum	Cinnamon
Cotarninæ Hydrochloridum	Cotarninæ Chloridum	Sypticin
Emplastrum Elasticum	Emplastrum Adhæsivum	Adhesive Plaster; Sticking Plaster
Emplastrum Plumbi	Emplastrum Plumbi Oleatis	Diachylon Plaster; Lead Plaster
Extractum Belladonnæ Foliorum	Extractum Belladonnæ	Extract of Belladonna
Extractum Colchici Cormi	Extractum Colchici	Extract of Colchicum
Ferri Phosphas	Ferri Phosphas Solubilis	Iron Phosphate
Fluidextractum Colchici Seminis	Fluidextractum Colchici	Fluidextract of Colchicum
Hexamethylenamina	Methenamina	Formin, Urotropin, etc.
Hypophysis Sicca	Pituitarium	Pituitary
Liquor Calcis	Liquor Calcii Hydroxidi	Lime Water
Liquor Hypophysis	Liquor Pituitarii	Pituitary Solution
Mel Depuratum	Mel	Honey
Oleum Cassiæ	Oleum Cinnamomi	Oil of Cinnamon
Oleum Picis Liquidæ Rectificatum	Oleum Picis Rectificatum	Oil of Tar
Pilulæ Catharticæ Compositæ	Pilulæ Hydrargyri Chloridi Mitis Compositæ	Compound Cathartic Pills
Pix Liquida	Pix Pini	Tar; Pine Tar
Plumbi Oxidum	Plumbi Monoxidum	Lead Oxide; Lead Monoxide; Yellow Oxide of Lead
Rosa Gallica	Rosa	Rose Leaves
Saccharum	Sucrosum	Cane Sugar
Saccharum Lactis	Lactosum	Milk Sugar
Serum Antidiphthericum Purificatum	Antitoxinum Diphthericum	Diphtheria Antitoxin
Serum Antitetanicum	Antitoxinum Tetanicum Crudum	Crude Tetanus Antitoxin
Serum Antitetanicum Purification	Antitoxinum Tetanicum Tetanus	Antitoxinum
Sodii Benzosulphinidum	Glusidum Solubile	Soluble Saccharin
Spiritus Ætheris Nitrosi	Spiritus Æthylis Nitritis	Sweet Spirit of Nitre
Syrupus Picis Liquidæ	Syrupus Picis Pini	Syrup of Tar
Syrupus Tolutanus	Syrupus Tolu	Syrup of Tolu
Thyroideum Siccum	Thyroideum	Thyroid
Tinctura Belladonnæ Foliorum	Tinctura Belladonnæ	Tincture of Belladonna
Tinctura Colchici Seminis	Tinctura Colchici	Tincture of Colchicum
Tinctura Limonis Corticis	Tinctura Limonis	Tincture of Lemon Peel
Tinctura Opii Deodorati	Tinctura Opii	Tincture of Opium Tincture of Deodorized Opium
Tinctura Tolutana	Tinctura Tolu	Tincture of Tolu
Unguentum Diachylon	Unguentum Plumbi Oleatis	Diachylon Ointment
Unguentum Hydrargyri	Unguentum Hydrargyri Fortius	Stronger Mercurial Ointment

Unguentum Hydrargyri Dilutum	Unguentum Hydrargyri	Mercurial Ointment; Blue Ointment
Unguentum Picis Liquidæ	Unguentum Picis Pini	Tar Ointment
Virus Vaccinicum	Vaccinum Variolæ	Vaccine Virus; Smallpox Vaccine

THOMAS HENRY HUXLEY.

Biologists, medical men, and other scientists, rightfully claim Thomas H. Huxley as one of their illustrious number. However, as in so many other instances, pharmacy can also lay claim to this distinguished scientist.

THOMAS HUXLEY.

He was born May 4, 1825, at the village of Ealing, near London, and received part of his education at Ealing School, where his father was a master. He said of himself that he was the seventh child, born on the seventh day of the week, on a seventh floor back. All through his life he was intent that nothing should be said of him that would credit him with a preferment to which he was not entitled. His genius for good work, a biographer states, came from his mother, a tireless, ambitious woman, who got things done while others were discussing them.

The earlier years of young Huxley did not portend that he would be the great scholar, the centenary of whose birth is celebrated this year. For the family in modest circumstances the first thing was to provide a living, and practically all the school education that was given young Huxley in his early teens was a good drilling in the three R's. At an early age he was apprenticed to a pharmacist, who paid him six shillings a week, a sum that the boy regularly gave to his mother.

His success can be ascribed to a great thirst for knowledge; he always wanted to know, and his thoroughness in the drug store won the admiration of the doctors who dealt there. Several of them loaned him books, and took him to clinics, and at the age of 17 he had gained a free scholarship to Charing Cross Hospital, where he served as nurse and assistant surgeon. After that he was appointed assistant surgeon in the Navy on H. M. S. "Rattlesnake." Whatever may have been the value in other respects, of the voyage of the "Rattlesnake," it was assuredly of immense importance to her assistant surgeon as a training school, not only in science, but in practical life, and from here on; in fact, even from the earlier years, his progress to distinction was continuous. In his mind life was a sequence,—the happenings of to-day were possible because of that which was done yesterday, and to-morrow will be the result of to-day. He dared to utter that which he felt was true, and the strongest desire of his soul was that he might never compromise with error for the sake of mental ease, or accept a belief simply because it was pleasant.

Thomas Huxley visited in the United States during the Centennial year (1876). He died June 29, 1895.

THERAPEUTIC VALUE OF DRUGS.

The ultimate proof of the value of any remedy can be established only at the bedside. This is a fact which we are apt to forget. Hypothetical considerations and the results obtained by the laboratory worker are invaluable because of the possibilities and indications they suggest, but the clinician is responsible for the final evidence.—Edwin Bramwell, *Lancet*, February 7, 1925.

THE DEPARTMENT OF THE AMERICAN CONFERENCE OF PHARMACEUTICAL FACULTIES

(Dr. W. H. Zeigler is right when he says that we are giving too much of Conference time to routine business and not enough to the important subject of teaching. I hope that the members of the Conference will accept his suggestions and assist in preparing programs for the sectional meetings.—C. B. JORDAN, Editor.)

TO THE MEMBERS OF THE AMERICAN CONFERENCE OF PHARMACEUTICAL FACULTIES.

As the time draws near for the convening of the twenty-sixth Session of the American Conference of Pharmaceutical Faculties, we should begin to make our plans, not only to be promptly on hand, but to carry something with us that will be of interest to the other members of the Conference. What are you doing to assist in making this meeting the most successful one we have ever had? It has always been my opinion that we should devote less time to routine matters and more time to the reading and discussion of papers on teaching methods. As a conference of teachers, the prime object of our meetings should be to improve our curriculum.

For some time I have been corresponding with members of the Conference, relative to a plan that I believe would materially aid us in solving some of our problems. Briefly, the plan I wish to suggest is that we devote a morning and afternoon session of the first day to group conferences. Last year I had the pleasure of attending the Conference on Practical Pharmacy, which was held Thursday and Friday of the week preceding the meeting of the American Conference of Pharmaceutical Faculties. All who attended acknowledged that they were amply rewarded for the trouble and expense incurred. The Botany and Pharmacognosy group is already organized, and I feel certain that the teachers of chemistry, pharmacy and materia medica would also welcome a conference.

Now that we are on the eve of our new three-year course, every teacher will be interested in knowing how the others will divide up their subjects; this alone would supply us with material for at least one of the sessions. There are hundreds of other topics that could be discussed "around the table." Some of the members of the Conference with whom I have discussed this plan are of the opinion that since materia medica is so closely allied to botany and pharmacy, it should be continued as a part of that group; others, that since materia medica, as such, is becoming obsolete, the title of that section should be Physiology, Pharmacology and Physiological Standardization. Personally, I believe the subject as taught in most of the schools to-day consists largely of the physiological action, therapeutics and toxicology; the source, history, character and constituents of the drug being stressed in the course of Pharmacognosy. Undoubtedly, there is too much time lost in repetition; correlation of our subjects is one of the topics that could be discussed to advantage. It has also been suggested that Practical Pharmacy and Chemistry be separated from theoretical, and that a separate group be created for the bio-assayists and physiologists.

I will welcome suggestions from the Conference members. If time permitted, I would like to present to each member the following questionnaire:

1. Do you approve of having a symposium on the teaching of major subjects in the Pharmacy course?

2. What subjects should be included?

3. How do you, individual teachers of the Conference, want the organization conducted?

4. What does the American Conference of Pharmaceutical Faculties not do, that could be of aid to you in solving your problems?

The main object of our organization is to promote pharmaceutical education. We have progressed very rapidly along certain lines in the past few years, but our most urgent need, at present, is to improve our teaching methods.

If you have time, send me your answers to the above questionnaire.

W. H. ZEIGLER.

(Pharmaceutical educators and retail pharmacists have been wondering how the program of the American Conference of Pharmaceutical Faculties will be received, especially that part of the program requiring a minimum three-year course beginning September, 1925. Professor Zada M. Cooper, Secretary of the Conference, is in a position to secure information regarding the acceptance of this forward step on the part of the Conference. The following article by Miss Cooper shows the wisdom of the pharmaceutical educators in taking this far-reaching, forward step at this time.—C. B. JORDAN, Editor.)

THE THREE-YEAR COURSE.

BY ZADA M. COOPER.

The things that have been said about a minimum three-year course since the Conference, in 1920, voted to put it into operation with the beginning of the year 1925, would make a large volume. There is nothing to be gained now by enumerating the arguments that have been presented for or against the change. Suffice it to say that the ten schools that have already started on the new program are expressing no regrets. To make such an advance when other schools were continuing on the two-year plan was a bit of pioneering that took courage.

Mention should be made of the splendid way in which several editors have championed the course. It was to be expected that the Association's own Journal would be for it but other Journals whose subscribers are chiefly retailers have put themselves on the side of its advocates as well.

I have been impressed with the fact that the number of colleges of pharmacy in the United States is on the increase. There may be several reasons for this but there is one thought that recurs to me whenever I think about it. If there is to be the enormous falling off in enrollment that has been predicted this cannot be a good time for a new college to open. Let us look at a few figures. I am well aware that one can prove anything by statistics properly juggled. So another individual analyzing the same situation might reach quite different conclusions but I am at a loss to see how.

During the ten years between 1914 and 1924 there was a net loss in number of schools of about twelve. Twelve were discontinued. There were two instances of two schools merging, and there were one or two new ones. That reduction seemed a perfectly natural condition of the times and the remaining schools could perfectly well care for all who wished to study pharmacy, at least with a little

expansion. The distribution of these schools was tolerably good; nearly every state had at least one, the exceptions being some of the New England states, where distances are so small as to make traveling expenses for students practically negligible, in the sparsely settled southwest or in the south where the Negro population is large. In 1924, sixty-three schools in the United States were registered or accredited by New York and there were at least three others giving two-year courses of possibly equal rank. Fifty-one of these were members of the Conference but that number has since been reduced to forty-six by the withdrawal of the New York schools.

Several schools that had applied for membership in the Conference but were not quite meeting requirements persisted in their efforts to come up to the standards set and others not ready to apply sought information about the things they would need to do before they would be eligible—all this in the face of the advancing standard in 1925. Perhaps some one will say that these schools hoped that that ruling would never go into effect as a few of the member colleges probably did. Had negotiations ceased after the Buffalo meeting that would seem to be a fair assumption but they haven't. I know of ten schools established for some years that have sought information about what they need to do to get in or have already applied. All of these know about the three-year course and some have announced their intention of going to that plan this year.

But to me the most significant fact is that in a short period of time there are several new schools where none ever existed before. In 1923 a state university in the south opened a new school, in 1924 three more were opened, one at a university, the other two in colleges that had been established for some time. Very recently another university has announced the opening of a college of pharmacy in September 1925. Not one of these is an independent institution that could even be suspected of doing such a thing as a money-making venture if that is conceivable under the present status of operating expenses. Three are in states where one or more colleges already exist.

What the explanation for these new schools may be I am unable to say. In one instance I know it was because the pharmacists of the state urged it and I have reason to believe the same to be true of another which is also in a state where there had been no college. The governing bodies of educational institutions are usually level-headed men and they are not likely to establish new schools that call for expensive equipment in the face of competition with older institutions in the same state or adjoining states at a time when it is predicted that there will be fewer students, unless they believe they will fill a real need. Four of these schools, possibly the fifth also, have announced that they expect to meet Conference standards.

The published statement about the newest one of these is that it is the "first excursion into the realm of medical science;" that the "great advances in pharmaceutical education that have been made within the past five years are little known to the general public," and that "the importance of the pharmacist as a member of the community and as a guardian of the public health is but little appreciated."

If I were to try to interpret the situation I should say that the advancing standards have convinced educators that pharmacy will be more attractive to a better class of young men and women and that they wish to provide for them.

Those who have taught long enough to have seen two years of high-school preparation increased to four and the six months' college year to nine months and the prerequisite laws go into effect have no hesitancy in saying that the type of student is very much better now. Students themselves at those transition periods have said that they were not attracted to a profession that had to compete with the product of plugging schools.

CORRESPONDENCE

THE STATUS OF THE HOSPITAL PHARMACIST.

BY EDWARD SWALLOW.

Mr. C. Dyna, in his interesting "reply"* to an humble effort of mine last year, seems on the whole to agree with the statements I put forth. As my paper expressed the views of one who had many years of experience as a hospital pharmacist in New York City, maybe the statements made were not broad enough to embrace the situation generally all over the country. Several years ago, with the one idea of trying to gather into the AMERICAN PHARMACEUTICAL ASSOCIATION as many hospital pharmacists as possible, we interested E. R. Squibb & Sons, who very generously had their traveling representatives calling upon American hospitals, to send the Association the names and addresses of as many hospital pharmacists as they could. In this way we collected, I believe, about 700 names and addresses. At that time there were about 75 per cent of women pharmacists engaged in this work. I must sadly re-echo Mr. Dyna's question, "Did anything materialize?" Somehow, only a comparatively few women and men engaged in hospital pharmacy have joined the AMERICAN PHARMACEUTICAL ASSOCIATION. The Section for Hospital Pharmacists is pitifully small, considering the number of persons in this important work, a number that is ever increasing.

It certainly would be worth while to make another effort to reach all of this class of pharmacists. How is it to be done? The mere act of meeting together of well-meaning men and women and talking this matter over year after year is only waste of breath and valuable time. These persons need to know personally how much to their advantage generally it would be if they became members of either the local branches of the ASSOCIATION or clasped hands with their parent—the AMERICAN PHARMACEUTICAL ASSOCIATION.

A great and glorious future is possible for the hospital pharmacists of America, but they never will reach it without organization within the ranks of the only ASSOCIATION representing pharmacy as a real profession. The men and women should be given an opportunity to learn all about this Hospital Section devoted to their interests and advancement generally. We have some of the finest men in the world as members of the AMERICAN PHARMACEUTICAL ASSOCIATION, who know the value of advertising and publicity. Surely, a little difficulty like reaching every hospital pharmacist by mail can be overcome! The addresses of all hospitals can be obtained. Why cannot the ASSOCIATION get busy and write to the pharmacists engaged therein?

APRIL 24, 1925.

AN APPRECIATION.

It is with great sorrow that I have learned of the passing away of Ex-President L. C. Hopp. We have lost a member who rendered loyal service to the AMERICAN PHARMACEUTICAL ASSOCIATION, a leader in his profession and a pharmacist of the finest type. Our friendship was one of long year's standing.

I esteemed him for his ability, kindliness and honesty. We shall miss his cheery countenance and warm handclasp at our meetings in the future.

JOHN G. GODDING.

BOSTON, MAY 23, 1925.

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* March JOURNAL A. PH. A., p. 255.

PROCEEDINGS OF THE LOCAL BRANCHES

"All papers presented to the Association and Branches shall become the property of the Association with the understanding that they are not to be published in any other publication prior to their publication in those of the Association, except with the consent of the Council."—Part of Chapter VI, Article VI of the By-Laws.

Article IV of Chapter VII reads: "Each local branch having not less than 50 dues-paid members of the Association, holding not less than six meetings annually with an attendance of not less than 9 members at each meeting, and the proceedings of which shall have been submitted to the JOURNAL for publication, may elect one representative to the House of Delegates."

Reports of the meetings of the Local Branches should be mailed to the Editor on the day following the meeting, if possible. Minutes should be typewritten, with wide spaces between the lines. Care should be taken to give proper names correctly, and manuscript should be signed by the reporter.

BALTIMORE.

Dr. Robert L. Swain presided at the April meeting of the Baltimore Branch of the AMERICAN PHARMACEUTICAL ASSOCIATION, which was held at the Hotel Emerson on April 29th, 1925.

The speaker was Dr. H. C. Fuller of Washington, who had as his subject "Solvents Used in Pharmacy."

Dr. Fuller has carried on extensive research work in connection with Isopropanol, and in his clear, concise manner he discussed the investigations on the physiological properties of Isopropanol and its practicability as a substitute for ethyl alcohol as a solvent in medicinal compounds. He gave the results of observations he had made of the effect of Isopropanol on the animal economy as conducted on rabbits, guinea pigs, cats, dogs, chickens, monkeys and human beings. He stated that the investigations were made with special reference to determining its effect on the vision, its local action when applied to the skin, scalp and open wounds, and its effects on the internal organs when administered by mouth at potable strength. Through these investigations he learned that when administered internally at not over fifty per cent strength, it affects the system to about the same degree as does ethyl alcohol. It is not more toxic than the latter substance and can be used safely as a substitute for a preservative and solvent.

Dr. Fuller exhibited a series of standard U. S. P. and N. F. preparations made with Isopropanol as the solvent. Some of these were at least two years old and had shown no deterioration in potency or appearance. He stated that data have been obtained indicating that in practically every instance involving a U. S. P. or N. F. product, Isopropanol can be substituted for ethyl alcohol without affecting in the least the physical appearance or the therapeutic efficiency.

Music was also one of the attractions of the evening, and this was made doubly interesting because the soloist was the popular and beloved Mrs. H. L. Meredith of Hagerstown, the wife of the President of the Maryland Board of Pharmacy and of the National Association of Boards of Pharmacy. Mr. Frank Slama of the School of Pharmacy of the University of Maryland accompanied Mrs. Meredith at the piano, and also rendered several enjoyable selections.

The next meeting of the Branch will be held at the Hotel Emerson on Wednesday, May 27th, at 8:15 P.M. Dr. J. C. Munch, Assistant Pharmacologist of the Bureau of Chemistry, Washington, D. C., and Dr. E. W. Schwartze, Pharmacologist in Charge of the Bureau, will present some aspects of Biological Assays. Miss Florence Johnson, who is connected with the Forest Park High School of this city, will be the soloist, and will be accompanied at the piano by Miss N. Eleanor Moore. This will be the last meeting of the Branch for this season.

B. OLIVE COLE, *Secretary-Treasurer.*

CHICAGO.

The sesqui-centennial meeting of the Chicago Branch of the AMERICAN PHARMACEUTICAL ASSOCIATION was held Friday evening, April 10, at the University of Illinois, School of Pharmacy Bldg. with President L. E. Warren in the chair. The speaker of the evening was Dr. Ralph G. Webster, famous as a toxicologist, who addressed the meeting on the subject of "Toxicology of Interest to Pharmacists."

Dr. Webster's address was quite extended

and of very great interest and covered many incidents from his varied experiences. It included three very important statements regarding the relationship of pharmacists to the Law.

First, under law, a pharmacist is responsible for the dosage of the medicine dispensed. Not only must he use care to see that the dose properly ordered by the physician is properly dispensed but he must check also the accuracy of the physician's order regarding dosage.

Second, the pharmacist is responsible for the purity and quality of the medicines he dispenses in so far as can be expected from a reasonable professional skill and judgment. The speaker quoted as an example a case where Phenacetin was ordered and the prescription was filled from a recently opened pound bottle labeled "Phenacetin" and bearing the name of a well-known manufacturer. It was subsequently proven beyond question that the material in the bottle was strychnine. The pharmacist, however, was not held responsible for the death of the patient but rather the manufacturer. The court held that the examination of every package of medicine purchased by the pharmacist for quality and purity was more than ordinary judgment and professional skill would require of the pharmacist.

The third precaution to be observed by the pharmacist was the danger of counter prescribing. Dr. Webster explained that the law indicated that if a customer inquired of the pharmacist for a remedy for a particular disease or condition, the pharmacist was quite within his legal rights to dispense and sell to the customer any item that he considered useful. If, however, the prospective customer stated his symptoms and requested the pharmacist to prepare him medicine to relieve these symptoms and the pharmacist did so, it would be considered as the prescribing of medicines and would be in direct conflict with the medical practice act. Not only, however, would this transaction be a breaking of the medical law but in case of any harmful action of the medicine on the patient, the pharmacist would be held under the poison laws.

MAY MEETING.

The 151st meeting of the Chicago Branch of the AMERICAN PHARMACEUTICAL ASSOCIATION was held at the University of Illinois, School of Pharmacy Bldg., Friday evening, May 8, with an audience nearly filling the lecture hall. The subject of the meeting was "Cod Liver Oil."

Prof. C. M. Snow presented Dean Day's introductory paper discussing the origin and preparation of Cod Liver Oil illustrated by charts and pictures and with an exhibit from the E. L. Patch Co. of Boston, Mass., recently presented to the University of Illinois, School of Pharmacy.

COD LIVER OIL.

BY WILLIAM B. DAY.

It is difficult to determine the period at which cod liver oil first came into use as a remedy, but there can be no doubt that it dates back for many centuries, as old records show that Greenlanders, Laplanders and Esquimaux were acquainted with its virtues long before they came in touch with civilization. The modern use of the remedy dates from the eighteenth century, though it is only within the last eighty years that it has come into importance as a medicine in our own country.

From a commercial standpoint most of the cod liver oil that enters commerce comes from Norway and Newfoundland and the smaller part from Massachusetts. This is not for the reason that cod fishing is confined to these localities, but rather that their shore fisheries enable the working up of the cod livers soon after the fish are caught and therefore the production of a good quality of the oil. Some advantage is claimed for Newfoundland over Norway in this respect, though the Norwegian oil is more widely known abroad. In the Norwegian fisheries there are two distinct seasons; an early season lasting from January to April during which fishing is most active near the Lofoten Islands and a later season continuing from May until August when the fishing centers about Finmarken. In the earlier season the catch is generally mature cod which spawn on the banks at that time, while during the later season the catch is a mixture of cod, haddock and coalfish. On the other hand the Newfoundland catch consists almost entirely of cod fish and the principal Newfoundland season is during the summer months though some cod are caught in the winter and spring. The food of the cod varies with the season, consisting generally of caplin, squid and herring.

It has been conjectured that the vitamin content of cod liver oil is in part dependent upon the food, and the statement has been made that the oil obtained from cod livers at the time that the fish are feeding upon caplin is especially rich in the anti-rachitic vitamin.

The fish range in length from sixteen inches to twenty-two inches, though occasionally much larger specimens are caught. The average weight is about eight to ten pounds. The livers vary considerably in size, but will average about one pound in weight and when the fish are healthy and fat the livers are cream colored and quite soft. The oil is obtained by cooking the livers in a steam jacketed kettle, straining, and subsequently refining the oil by chilling it and straining out the stearin. An inferior grade of oil is obtained by expressing the "blubber" remaining after the first operation, but this oil is darker in color and is not used for medicinal purposes. The production of cod liver oil in Newfoundland is directly controlled by the Ministry of Marine and Fisheries, and every manufacturer must hold a license issued by the government. Strict rules are laid down by the government concerning the distribution of the oil so as to insure a uniform product prepared under proper conditions. The cod liver oil thus prepared is filled into barrels which are lined with tin, and exported in this form.

B. R. Harris read a paper on the chemical constituents of Cod Liver Oil Extracts and presented a summary of the data obtained on Gaduol and Jecorrol. Both of these papers were received for publication in the JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION.

Dr. Bernard Fantus discussed the therapeutics of Cod Liver Oil. He stated that recent investigations indicated that Cod Liver Oil contained not only the growth-stimulating vitamin known as Vitamin "A" but also another vitamin which has special curative values in connection with rickets and known as Vitamin "D," or the antirachitic vitamin. Butter is rich in Vitamin "A" but poor in Vitamin "D." Coconut oil contains no Vitamin "A" but is quite rich in Vitamin "D." However, no other known natural substance is so rich in Vitamin "D" as Cod Liver Oil. Rickets is a disease of civilized life. It is more common in winter than in summer. It has been found that fresh air treatment is a potent remedy for the disease and that plenty of outdoor sunshine cures as well as does Cod Liver Oil. Finally, it has been demonstrated that the violet and ultra-violet rays from quartz lamps have the same curative value as sunshine. This might lead to the conclusion that ultra-violet rays and vitamin "D" have something in common in their curative powers.

Very recent investigations indicate that foods and certain fats naturally devoid of Vitamin "D" acquire this curative agent upon being irradiated with ultra-violet light for thirty minutes and that Vitamin "D" can be synthesized right before your eyes. Probably all vitamins are formed by plants and are essential to proper growth and cell proliferation in plants. Sea algae, especially those on or near the surface of the water, absorb the ultra-violet rays. Small fish eat these algae and concentrate or store these ultra-violet rays in their fats. Codfish consuming these small fish concentrate and store in the fat of the liver in the form that we now know as Vitamin "D," these same ultra-violet rays. It is known that the yolk of egg is also rich in Vitamin "D" and that milk likewise contains Vitamin "D."

The question now arises as to how Vitamin "D" acts as a curative agent. Are ultra-violet rays emitted upon the oxidation of oils containing Vitamin "D?" Perhaps cell proliferation in neither animals nor plants can be properly accomplished without these emanations. It would seem as though rapidly growing tissue especially needs these ultra-violet rays. Rickets as well as certain other diseases such as tuberculosis and some skin diseases seem to be benefited by cod liver oil due to the increased proliferation of cells.

While it is true that ultra-violet ray treatment and sunlight treatment are very valuable, the fact remains that cod liver oil as a therapeutic agent occupies a very high place in curative medicine which it probably will retain.

It has been found possible to disguise the disagreeable taste of cod liver oil to quite an extent especially if a fine grade of oil such as Moeller's Oil is used. The following formula is suggested by Dr. Fantus and Professor Snow for disguising the taste.

Benzosulphinid	0.05
Coumarin	0.001
Vanillin	0.10
Dehydrated Alcohol	2.00
Oil Bitter Almond	0.05
Oil Lemon	1.00
Oil Orange	0.10
Cod Liver Oil	100.00

The saccharin, coumarin and vanillin should be dissolved in the absolute alcohol and mixed with the volatile oils and then incorporated in the Cod Liver Oil. If U. S. P. alcohol is used the water present will cause a cloudiness

of the oil. Some such formula should be introduced into one of our standard formularies.

In the splendid discussion which followed, A. K. Epstein suggested that instead of using oil of lemon, the terpeneless oil be used in about one-twentieth the quantity and further that Oil of Noroli (terpeneless) in small quantity be added. Mr. Epstein also discussed the paper on cod liver oil extracts and stated that such extracts containing apparently the full Vitamin "A" content of the oil had been prepared in which the volume of extract represented 50,000 volumes of the oil. Extracts representing from 10 to 40 volumes of oil were on the market and some of them at least were rich in Vitamin "A" and Vitamin "D." He stated further that emulsion of cod liver oil prepared with Irish Moss as an emulsifying agent rather rapidly lost its vitamin content even to the extent of fifty per cent, while emulsions prepared with tragacanth apparently retained the full vitamin content of the oil. He stated that it was very important that standards be established for Cod Liver Oil Extracts.

Others spoke of the removal of the objectionable fishy odor and taste by filtering the oil through powdered, roasted coffee. It was explained, however, that ground coffee, as other adsorptive materials, might remove the vitamins as well as the disagreeable and irritating amines from the cod liver oil. At least this point should be investigated before the practice of filtering the oil through adsorptive materials was adopted.

The point was made in connection with cod liver oil extracts, that these very concentrated vitamin preparations would undoubtedly be prone to lose their vitamin powers. It seems as though a large bulk of bland oil tends to preserve these substances from oxidation and loss of ultra-violet radiations.

Mr. Harris brought out the theory that the ultra-violet radiation might act catalytically to bring about calcium and phosphorus digestion which seems to be so essential to cell proliferation.

Samples of Cod Liver Oil prepared after the formula suggested by Fantus and Snow were distributed to the audience for noting the odor and taste. Likewise samples of Patch's flavored cod liver oil were distributed.

Some comment was made that the Fantus-Snow preparation was somewhat too sweet, but otherwise it was highly approved. Upon vote it was unanimously declared to be a great improvement over the natural medicinal cod liver oil.

E. N. GATHERCOAL, *Secretary.*

DETROIT.

The April meeting of the Detroit Branch of the AMERICAN PHARMACEUTICAL ASSOCIATION was held on the 24th, at Ann Arbor, Michigan. Dean Kraus, of the Pharmacy Department of the University of Michigan, met the members at the Michigan Union where an excellent dinner was served. Thirty members and guests were present at the dinner.

After dinner the members gathered at the Pharmacy and Chemistry Bldg. of the University where their number was increased to 50.

President Chostner called the meeting to order at 8:15 P.M. The minutes of the previous meeting were read by the Secretary and approved. President Chostner appointed a nominating Committee to report at the May meeting to be held at Detroit, at which time election of officers will take place. The members appointed to serve on this Committee were Messrs. Leonard Seltzer, C. A. Weaver and John H. Webster.

President Chostner then introduced the speaker of the evening Dr. Howard B. Lewis, professor of Physiological Chemistry at the University of Michigan. Professor Lewis gave a very interesting talk on Insulin and its application. He accompanied his lecture with blackboard illustrations.

President Chostner then thanked Dr. Kraus for his hospitality and Professor Lewis for his highly educational and interesting talk.

After a rising vote of thanks by the assembly the meeting adjourned. An inspection tour was made through the newly-equipped Pharmacy Laboratories of the U. of M.

MAY MEETING.

The May meeting of the Detroit Branch of the AMERICAN PHARMACEUTICAL ASSOCIATION was held at the Wayne County Medical Society Friday, May 15th.

After an unusually good chicken dinner the meeting was called to order by President Chostner at 8:15 P.M.

The minutes of the April meeting were read and approved. The President then called for a report of the various committees of the past year. The absence of Treasurer Ingram forced a postponement of the reading of the financial statement. The only report being

available from the Treasurer Ingram, from London, was read by Mr. Webster as follows: "Very wet, especially the weather!"

Mr. Hall made a report of progress for the Membership Committee.

Mr. Seltzer then made an appeal for the All Pharmacy Building of the AMERICAN PHARMACEUTICAL ASSOCIATION, he was assisted by Mr. Webster in his earnest appeal for support of this good cause.

The comminttee on nominations, through Chairman Mr. Seltzer, reported the following nominees for officers for the ensuing year:

President, L. H. Rowe.
First Vice-President, R. H. Blair.
Second Vice-President, L. E. Weaver.
Treasurer, F. F. Ingram, Jr.
Secretary, B. A. Bialk.
Chairman of Program Committee, R. T. Lakey.

The nominees were unanimously elected.

W. A. Hall then proceeded with the annual prescription clinic which was intensely interesting and profitable.

Mr. Seltzer then, at the request of the assembly, gave a short outline of his system of Prescription Pricing. This talk proved so interesting that the assembly favored another meeting for discussion of the subject.

Mr. Seltzer's pricing idea was a very interesting one from the standpoint of the Pharmacist, who is saved a lot of embarrassment by following his set rule of prescription pricing.

President Chostner then thanked the speakers for the very interesting talk and after a short address of appreciation for the honor that the Branch had conferred on him, he gave over the chair to the President-elect L. H. Rowe.

Mr. Rowe thanked the members for the honor of having been chosen President. The meeting was then adjourned.

BERNARD A. BIALK, *Secretary*.

UNIVERSITY OF NORTH CAROLINA.

The twenty-fourth meeting of the University of North Carolina Branch of the A. PH. A. was held in Davie Hall on the evening of May 5.

Professor H. R. Totten, of the University department of Botany, delivered a most interesting and unusually instructive address on the Great Botanic Gardens of the World. The lecture was profusely illustrated with lantern slides.

This excellent collection of slides included garden views and drug plants from the following botanical gardens: Oxford, Chelsea, Kew, Regent's Park, Edinburgh, Copenhagen, Stockholm, Amsterdam, Leyden, Gröningen, Brussels, Berlin and Dahlem, Dresden, Paris, Bern, Vienna, Cairo, Calcutta, Ceylon, Buitenzorg, Surinam, Ottawa, Missouri, New York, Brooklyn, and the Arnold Arboretum.

The association is indebted to Dr. Caswell A. Mayo, of the Wm. S. Merrell Co., of Cincinnati, for the loan of the slides and his notes on this subject.

The lecture met with such a favorable reception that Prof. Totten was asked to repeat it before a joint audience consisting of the public school children, the Boy Scouts, and members of the Community Club, of Chapel Hill.

The twenty-fifth meeting of the University of North Carolina Branch of the A. PH. A. was held in Person Hall on the evening of May 22.

The following officers were elected to serve the Branch during 1925–26: *President*, F. H. Scroggs; *First Vice-President*, K. V. Franklin; *Second Vice-President*, F. O. Garren; *Secretary and Treasurer*, W. J. Lindeman.

After the business session Prof. E. V. Kyser of the School of Pharmacy spoke on "The Branch and Its Relation to Pharmacy in North Carolina." He pointed out the growth of the National Association in North Carolina during the three years since the Branch has been organized. He stated that the membership in this state had grown from a normal yearly membership of twenty-five or thirty to a membership of over two hundred, and further that the State had moved up in its rank among the states from fortieth to sixth place in total membership in the National Association. In conclusion Professor Kyser made the plea that members who are graduating this year should retain their membership and become active in the affairs of the organization. He suggested that some time should be given to thought of the professional side of drug store life and that he hoped that members would develop the habit of contributing papers to the national journal, and finally that they should retain their membership to help the state association maintain their quota in the national body.

The Carolina Inn was the scene of one of the most brilliant social events of the season when the Kappa Psi Fraternity gave its annual dance there May 9. The ball room was tastefully decorated in the fraternity colors, scarlet and

gray. The North State Eight furnished the music for the occasion, and it was unusually good.

Many out-of-town girls were in attendance. During the evening a special number was played for the members of the fraternity and their partners, and at this time beautiful hammered silver perfume vannettes were given as favors.

The dance was one of the most colorful and enjoyable social affairs ever given at the Carolina Inn, which has become the University's social center of activities.

NORTHERN OHIO.

A regular meeting of the Northern Ohio Branch of the A. PH. A. was held at the School of Pharmacy, Western Reserve University, April 28th, 1925.

The meeting was called to order by President Willard Fox. Dr. Arthur C. DeGraff, a member of the faculty of the School of Pharmacy and Crile Research Fellow in Physiology of Western Reserve University Medical School, was introduced as speaker of the evening. His subjects were "Digitalis" and "Insulin."

The history, methods of assay and clinical use of digitalis were interestingly discussed by the speaker, especial emphasis being laid on the cat method of assay. This method, in the opinion of the speaker, is much more accurate than the frog method and the more logical of the two. The official tincture is preferred above all other digitalis preparations, regardless of the claims made for many special formula preparations. The tincture does not deteriorate, so far as its real medicinal virtue is concerned, if properly kept, for a year after preparation. It is driving out of use the preparations of the other members of the digitalis group. The infusion has no real merit above that of the tincture; however, contrary to the general opinion, it will retain its virtue for a week or ten days, if properly stored.

As regards Insulin, the speaker emphasized the fact that it cannot be considered a cure, except, perhaps, in youthful people. It has wonderful value in acute cases of diabetes. In chronic cases diet still plays the important rôle, insulin being a useful adjunct.

After his very instructive talk Dr. De Graff generously answered a number of pointed questions on the subjects discussed.

M. T. CHAMBERLIN, *Acting Secretary.*

UNIVERSITY OF WASHINGTON.

The February meeting of the University of Washington Branch was held at Bagley Hall, February 19, 1925. Dr. McLaughlin, city health commissioner, was the speaker of the evening. He presented in detail the scope and divisions of the Health department and the duties of each division. Many special incidents were enumerated, from garbage disposal to sanitarium control.

S. F. Worswick, representative of the Taylor Instrument Company, was the speaker at the March meeting of the University of Washington Branch. The information given by Mr. Worswick on the manufacture, testing, grading, etc., of clinical thermometers offered many selling points for the retailer, besides being of popular interest. "How to Take a Bath" seems to be a specialty talk of the speakers. Apparently best results are obtained if the temperature of the water is controlled and of course a "Taylor Bath Thermometer" is a necessity then.

The speaker at the April meeting of the University of Washington branch was Dr. Simpson, bacteriologist for the State Board of Health. He discussed various types of contagious diseases and disease carriers. Methods used in determining the source of contamination of milk and water supplies were given. Tubes were displayed showing characteristic bacterial growth. Water and sputum containers and various antitoxins were also shown. Materials for sterilization and disinfection handled by the druggist were found to be numerous.

H. V. SNIDOW, *Secretary.*

A SUPREME COURT OF NATURE.

William Feather, in "Business Philosophy," says,—"If we would only realize that there is a supreme court of nature we would save ourselves many disappointments. Nature says that capital shall have a fair return. If this return is not forthcoming, no capital is available for additional equipment or extensions. Then we have paralysis of industry. We are not saying that public regulation is not the right thing, but we know that the investor is a human being and that unless he gets a proper return on his money he will refuse to advance capital."

ASSOCIATION BUSINESS

AD INTERIM BUSINESS OF THE COUNCIL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION, 1924–1925.

Office of the Secretary, 192 Roseville Ave., Newark, N. J.

LETTER NO. 6.

May 21, 1925.

To the Members of the Council:

61. Approval of Minutes of Executive Committee meeting. Motion No. 27 (see item 54, Letter No. 5, page 76) has been carried and the minutes are approved.

62. Change in Date of Meeting. Motion No. 28 (see item 55, Letter No. 5, page 354) has been carried and the change in the meeting date to the week of August 24th has been approved.

63. Election of New Members. Motion No. 29 (see item 58, Letter No. 5, page 355) has been carried. Applicants for membership numbered 124 to 193, inclusive are declared elected. Motion No. 30 (see item 59, Letter No. 5, page 356) has been carried and applicants for membership numbered H-242 to H-329, also H-201, H-210, H-223 and H-227 are declared elected. Motion No. 31 (see item 60, Letter No. 5, page 358) has been carried and applicants for life membership numbered L. M. 6 to L. M. 19 are declared elected.

64. Nominations for Full Time Secretary. The call for nominations for full time secretary resulted as follows: Six members of the Council nominated Dr. E. F. Kelly; one member nominated Dr. E. L. Newcomb and one member nominated the following—Dr. James H. Beal, E. G. Eberle, Prof. W. B. Day, Dr. P. S. Pittenger and Dr. R. P. Fischelis. Professors W. B. Day and R. P. Fischelis and E. G. Eberle asked to have their names withdrawn as candidates.

A vote on these nominees is now called for.

65. Appropriation for Publicity Bulletins. Prof. Day has notified the Finance Committee that while the $1000, appropriated by the Board of Directors last year for publicity bulletins to be prepared and distributed by Prof. Newcomb under the direction of the House of Delegates was not used, the amount has not been re-appropriated for the current year. Inasmuch as Prof. Newcomb is now issuing these bulletins it is deemed advisable to make the appropriation again.

(*Motion No. 32.*) *It is moved by LaWall, seconded by Day, that $1000 be appropriated for publicity bulletins to be prepared and distributed by Prof. Newcomb in accordance with the action of the Board of Directors as provided in Letter No. 9 of the 1923–24 series, page 82.*

66. Membership in the American Association for the Advancement of Science. The following communication has been received by Prof. Day and is transmitted to the Council for information:

DEAR DOCTOR DAY:

"The application for the affiliation of the AMERICAN PHARMACEUTICAL ASSOCIATION with the A.A.A.S. (your letter of February 18) was considered at the recent spring meeting of the Executive Committee of the Association, but was referred to the section committees of Section C (Chemistry) and N (Medical Science) for recommendations. The matter is, therefore, left undecided, but without any prejudice. A decision may be reached at the fall meeting of the Executive Committee, in October.

I hope that your patience will be maintained.

Yours very sincerely,

BURTON E. LIVINGSTON,
Permanent Secretary."

67. Resolution on Manufacture and Sale of Alleged Alcoholic Medicinal Preparations. The Committee which was appointed to draw up resolutions declaring the stand of the AMERICAN PHARMACEUTICAL ASSOCIATION in the matter of the sale of alleged alcoholic medicinal preparations submits the following resolutions:

"Pharmacy has for its primary object the preparation of medicines for the sick. In addition to this responsibility the members of the profession have been entrusted with the dispensing and use of alcoholic liquids for medicinal purposes.

"The pharmacist who connives at or actually takes part in the compounding, marketing, or sale of preparations which, while masquerading under the guise of medicines, and possibly complying with the letter of the regulations governing these products, have for their principal purpose the evasion of the Eighteenth Amendment, is an unworthy member of our honored calling.

"Pharmaceutical organizations should purge their membership lists of such individuals as speedily as possible, in order that the public which the profession serves may realize that such individuals are not representative of pharmacy.

"Our aims and ideals are constructive, and we deprecate the false position in which pharmacy is placed by the despicable actions of the few who infest our calling with purely selfish aims which are destructive to the best interests of society at large.

E. G. EBERLE
H. V. ARNY
CHARLES H. LAWALL"

(Motion No. 33). It is moved by Fischelis that the foregoing resolution be approved and given proper publicity in the Journal of the Association.

68. Applicants for membership: The following applications accompanied by first year's dues and proper endorsements have been received. You are requested to vote on these applications.

No. 194, Manlus Ray Barnhardt, 101 Carr St., Chapel Hill, N. C.; No. 195, Col. Marston Taylor Bogert, Havemeyer Hall, Columbia, Univ., New York City; No. 196, Frederick H. Borcherdt, 217 N. Lincoln St., Chicago, Ill.; No. 197, W. Irl Brite, 1018 Garrison Ave., Ft. Smith, Ark.; No. 198, Jacob Brody, 33 Sumner Ave., Brooklyn, N. Y.; No. 199, Thomas R. Burgiss, Elkin, N. C.; No. 200, Wilbur S. Cate, Box 40, University Station, Gainesville, Fla.; No. 201, Walter Dassel, 1315½ E. 42nd St., Seattle, Wash.; No. 202, C. A. Deshell, 589 E. Illinois St., Chicago, Ill.; No. 203, Geo. W. Dill, Jr., Morehead City, N. C.; No. 204, Zachary Druss, 1424 Crotona Park East, New York City; No. 205, Karl F. Ehmann, 5015 No. Fourth St., Philadelphia, Pa.; No. 206, Robert Rufus Ellis, So. Front & McCall Sts., Memphis, Tenn.; No. 207, Dr. Gonzalo Iturrioz Font, Lagunas 87 A, Habana, Cuba; No. 208, Daniel W. Houser, 11542 E. Jefferson St., Detroit, Mich.; No. 209, Glenn S. Jennings, 4 & 5 No. Main St., Statesboro, Ga.; No. 210, A. Kamallan, c/o Howe Co. Inc., Prefontaine Bldg., Seattle, Wash.; No. 211, Louis H. King, 1519 Gaines St., Little Rock, Ark.; No. 212, John F. Koenig, 1412 So. G St., Tacoma, Wash.; No. 213, Demetrius Serlis, American University, Beirut, Syria; No. 214, Vella E. Thomson, 4322—12th St., N. E., Seattle, Wash.; No. 215, Edw. Scott Veon, P. O. Box 1472, St. Petersburg, Fla.; No. 216, Geo. H. Ballance, 301 J, Chapel Hill, N. C.; No. 217, T. Willard Burke, 196 Essex St., Lynn, Mass.; No. 218, Albert E. Clark, c/o The Mu-Col Co., 158 E. Tupper St., Buffalo, N. Y.; No. 219, Albert W. Clayton, Jr., Theta Rho House, Chapel Hill, N. C.; No. 220, Harold Gilbert, Editor, The Druggist, P. O. Box 1075, Memphis, Tenn.; No. 221, L. D. Sale, P. O. Box 300, Arcade Sta., Los Angeles, Calif.; No. 222, Geo. W. Slaughter, 526 Griswold St., Detroit, Mich.; No. 223, Lawrence S. Sullivan, 414 D, Chapel Hill, N. C.; No. 224, Walter Wm. Vogel, 2540 E. Fayette St., Baltimore, Md.; No. 225, Clarence B. White, 104 G, Chapel Hill, N. C.; No. 226, Chas. W. Whittlesey, 259–271 State St., New Haven, Conn.; No. 227, C. M. Williamson, 405 D, Chapel Hill, N. C.; No. 228, Harry D. Bate, 5500 S. State St., Chicago, Ill.; No. 229, Alfred Fleishman, 5702 Enright Ave, St. Louis, Ill.; No. 230, Milton Franken, 8th & Central Ave., Cincinnati, Ohio; No. 231, Nathan Green, 1111 No. 41st St., Philadelphia, Pa.; No. 232, John P. Jennie, Clark & Freeman Aves., Cincinnati, Ohio; No. 233, Otto Emil Kistner, 2105 Vine St., Cincinnati, Ohio; No. 234, J. Otto Kohl, McMicken & Mohawk Sts., Cincinnati, Ohio; No. 235, Edward O. Krekeler, 3821 Glenway Ave., Cincinnati, Ohio; No. 236, Dr. Ramon Antonio de la Puerta, Jesus Maria, No. 115 Bajos, Habana, Cuba; No. 237, Harry Segel, 1700 N. 2nd St., Philadelphia, Pa.; No. 238, Henry F. Tartaglia, 919 E. 5th St., Brooklyn, N. Y.; No. 239, Leon A. Turney, 308 W. Van Buren St., Chicago, Ill.; No. 240, Johanna Helena Bunge, Avoca, Iowa; No. 241, Lindon C. Fleimister, McCaulley, Texas; No. 242, Dan Wm. Foster, 203 F St., Chapel Hill, N. C.; No. 243, Frank P. Haeseler, 922 W. Madison St., Chicago, Ill.; No. 244, Julius Kaplan, 83 Chambers St., Boston, Mass.; No. 245, Jos. P. Kelly, 307 S. Lotis St., Chicago, Ill.; No. 246, Paul Edwin Kirkman, 117 Rosemary St., Chapel Hill, N. C.; No. 247, Anthony La Course, Jr., 104 Evergreen Ave., Hamilton, Baltimore, Md.; No. 248, Lacy Jennings Lancaster, Parkton, N. C.; No. 249, Wm. M. Mathews, Chapel Hill, N. C.; No. 250, Wm. A. McGuire, Horse Cave, Ky.; No. 251, Ralph E. Monteith, 708 E. State St., Centerville, Ia.; No. 252, Eugene Van Sapp, Lancaster, S. C.; No. 253, John P. Schneider, 221 Mulberry St., Berea, Ohio; No. 254, Harry Smuckler, 1719 N. Marshall St., Philadelphia, Pa.

(*Motion No. 34.*) *Vote on applications for active membership in the American Pharmaceutical Association.*

69. Applicants for membership who have contributed to Building Fund. The following non-members of the A. PH. A. have pledged a total of $25.00 or more to the building fund and have made a cash payment of $5.00 or more. They are therefore entitled to membership in the A. PH. A. You are requested to vote on these applications.

H-227, M. J. Godfrey, Chapin, Iowa. (To take the place of Walter D. Lamar, previously listed as H-227.) H-330, David L. C. Hover, Cloudcroft, N. Mex.; H-331, Thos. Henry Marshall, I. O. O. F. Bldg., E. Main St., Holland, N. Y.; H-332, W. D. Mowry, 925 Minnesota Ave., Kansas City, Kans.; H-333, Ernest H. Niemoeller, 3900 Greer Ave., St. Louis, Mo.; H-334, Bertrand Subin, 1440 Jonquil Terrace, Chicago, Ill.; H-335, Sewall D. Andrews, 24 N. 3rd St., Minneapolis, Minn.; H-336, Max Sadoff, 1531 E. 18th St., Minneapolis, Minn.; H-337, Jos. M. Senereid, 814—8th St., Boone, Iowa; H-338, Hayden S. Cameron, 500—3rd St., Eureka, Calif.; H-339, Samuel Applebaum, 1123—8th Ave., Brooklyn, N. Y.; H-340, Adam S. Baozynski, 178 Driggs Ave., Brooklyn, N. Y.; H-341, Samuel Baron, 960 E. 180th St., New York City; H-342, Max Bergman, 2074 Morris Ave., Bronx, New York City; H-343, Isaac Bounin, 1503 St. John Place, Brooklyn, N. Y.; H-344, Philip Buttafuoco, 1500 Gates Ave., Brooklyn, N. Y.; H-345, Benedetto Carfora, 614 Morris Ave., New York City; H-346, Joe S. Case, 97 E. Main St., Logan, Ohio; H-347, Alexander Cohen, 121 Prospect Ave., Mt. Vernon, N. Y.; H-348, Anthony J. De Marco, 3 Hartley Circle, Mt. Vernon, N. Y.; H-349, Sam Fine, 657 3rd Ave., New York City; H-350, I. Fleishman, 528 Brook Ave., Bronx, New York City; H-351, Uriah M. Friedmann, 111 Atlantic Ave., Brooklyn, N. Y.; H-352, Paul Gagliano, 626 Washington Ave., Brooklyn, N. Y.; H-353, Solomon M. Gerver, 192 Brook Ave., Bronx, New York City; H-354, Wm. B. Ginsberg, 748 Washington Ave., Brooklyn, N. Y.; H-355, Isadore Goldberg, 2131 N. Robey St., Chicago, Ill.; H-356, Jesse Grossman, 511 E. 183rd St., New York City; H-357, Richard Hoffman, 2001 Webster Ave., New York City; H-358, Wm. V. Irons, 3435 Main St., Buffalo, N. Y.; H-359, David Kogan, 7726–3rd Ave., Brooklyn, N. Y.; H-360, Edw. H. Koss, N. E. Cor. 7th St. & Fla. Ave., N. W., Washington, D. C.; H-361, Wm. H. Kratz, 900 S. Ellwood Ave., Baltimore, Md.; H-362, M. Lapides, 1823 Loring Pl., New York City.; H-363, John A. Lazardes, 21 New Bowery, New York City; H-364, Albert Moskin, 28 W. Palisade Ave., Englewood, N. J.; H-365, J. J. Neiman, 1215 Eastern Parkway, Brooklyn, N. Y.; H-366, Moe J. Novendstive, 45—5th Ave., Brooklyn, N. Y.; H-367, Henry C. Ossenbrink, West Point, Iowa; H-368, Wm. Perry, 74 Orange St., Brooklyn, N. Y.; H-369, Eugene E. Peters, 1401 Fairmount St., N. W., Washington, D. C.; H-370, Wm. H. Ponder, 221 W. Pratt St., Baltimore, Md.; H-371, Charles A. Pumo, 5209 3rd Ave., Brooklyn, N. Y.; H-372, Samuel D. Shagan, 49 Atlantic Ave., Brooklyn, N. Y.; H-373, Thos. L. Sherman, 7525—5th Ave., Brooklyn, N. Y.; H-374, Hugh O. Shirk, 3419 1st St., Des Moines, Iowa; H-375, Samuel Singer, 1248 S. Sawyer Ave., Chicago, Ill.; H-376, Stanley Slomski, 453 Coney Island Ave., Brooklyn, N. Y.; H-377, Stanislaus John Sternicki, 6503 Fleet Ave., Cleveland, Ohio; H-378, Max Wolfram, 1619 Amsterdam Ave., New York City; H-379, Israel Weinshenker, 279 Lenox Ave., New York City.

(*Motion No. 35.*) *Vote on applications of contributors to building fund, for membership in the American Pharmaceutical Association.*

70. Applicants for Life Membership. Under the provision made by the Board of Directors of the A. PH. A. at a meeting held in Washington, D. C., December 7, 1923, a contributor to the Building Fund who subscribes $1000 or more is entitled to life membership. The following applications are submitted under this provision:

L. M. No. 20, Ferdinand W. Nitardy, 29 Monroe Place, Brooklyn, N. Y.; L. M. No. 21, Walter D. Lamar, 238 Georgia Ave., Macon, Ga. (Previously listed as H-227); L. M. No. 22, Alexander Cary Henderson, Armour & Co., Chicago, Ill.; L. M. No. 23, Thomas Nevin, 9 E. 41st St., New York City; L. M. No. 24, Henry Armitt Brown Dunning, Charles & Chase Sts., Baltimore, Md.; L. M. No. 25, Isaac E. Emerson, Emerson Drug Co., Baltimore, Md. (Previously listed as H-297).

(*Motion No. 36.*) *Vote on applications for Life Membership in the American Pharmaceutical Association.*

ROBERT P. FISCHELIS,
Secretary of the Council.

EDITORIAL NOTES

Editor: E. G. EBERLE, Bourse Building, Philadelphia, Pa.

Members of the Council, A. PH. A.: JAMES H. BEAL, *Chairman;* S. L. HILTON, *Vice-Chairman;* ROBERT P. FISCHELIS, *Secretary;* CHARLES H. LAWALL, HENRY M. WHELPLEY, H. V. ARNY, A. G. DUMEZ, CHARLES E. CASPARI, W. L. SCOVILLE. *Ex-Officio:* CHARLES W. HOLTON, President; Vice-Presidents, PAUL S. PITTENGER and WILLIAM MANSFIELD; WILLIAM B. DAY, Secretary; E. F. KELLY, Treasurer; W. BRUCE PHILIP, Chairman of the House of Delegates. Editors of the JOURNAL and YEAR BOOK: E. G. EBERLE and A. G. DUMEZ. Committee on Publications: R. P. FISCHELIS, *Chairman;* H. V. ARNY, PAUL S. PITTENGER, E. F. KELLY, WM. B. DAY, A. G. DUMEZ, E. G. EBERLE.

Collaborators: The members of the Council; the Editor of the YEAR BOOK, A. G. DUMEZ; E. FULLERTON COOK, Chairman, U. S. P. Revision Committee; W. L. SCOVILLE, Chairman, N. F. Revision Committee; the Chairmen of the Sections, A. Ph. A.: PAUL S. PITTENGER, WILLIAM MANSFIELD, JOHN C. KRANTZ, JR., R. S. LEHMAN; W. BRUCE PHILIP, Chairman of the House of Delegates, A. Ph. A.; W. H. ZEIGLER, President A. C. P. F.; CHARLES B. JORDAN, Chairman Executive Committee, A. C. P. F.; H. LIONEL MEREDITH, President, N. A. B. P.; HENRY C. CHRISTENSEN, Secretary, N. A. B. P.

MESSAGES FROM THE CAMPAIGN COMMITTEE ON AMERICAN PHARMACY HEADQUARTERS.

You have undoubtedly served, as I have, on campaigns to raise funds for the church, the community center, and on dozens of other splended, worthwhile enterprises. Never before have we had an opportunity to directly serve ourselves in a great nation-wide movement for Pharmacy.—H. A. B. DUNNING.

Headquarters Work Systematized: A complete business-like system has been installed by the publicity department for distributing information relative to the All-Pharmacy Headquarters Building project. Addressograph plates and card index files keep all data in correct and up-to-date form. Requests for information are promptly and quickly supplied. Associate Publicity Director Al. Falkenhainer of Algona, Iowa and the Director, E. L. Newcomb of the University of Minnesota, Minneapolis, Minnesota, are desirous at all times to have suggestions for improving the service, or ideas to help put the campaign over. This whole undertaking is one in which there need be no hesitancy anywhere in asking for subscriptions. It is a great project by all and for the good of all.

President Edwards Issues Strong Appeal. "I am concerned," says Webster K. Edwards, President of the Maryland Pharmaceutical Association in a recent letter sent to all Maryland pharmacists, "as to just how seriously we pharmacists have taken the information supplied to us on the All Pharmacy Headquarters Building project. This is the biggest undertaking in the history of pharmaceutical endeavor. It is unquestionably the opportunity for the pharmacists of America to unify all the various branches of pharmaceutical work."

President Edwards closes with the following appeal: "Your support is now urgently needed. Make your subscriptions as large as possible. Use your influence in securing the support of others. You are a part of pharmacy. Your future welfare depends upon it. United pharmacy represents a power and influence adequate for our proper protection."

"Pharmacy Week" and the Headquarters: More special emphasis should be placed upon the drug and pharmaceutical side of the modern drug store. Public sentiment is created and opinion molded by what the eye sees and the ear hears. If the drug store does not reflect professional service, and drugs and medicines, the public will not long look upon it as a place where such service and supplies are a fundamental part of the business. Dr. F. B. Kilmer is now carrying on preliminary work which it is hoped will lead to more intensive attention to pharmacy and drugs, in the displays in drug stores. Such propaganda work is very commendable; it will help pharmacy and it will help the public. With a great Central Headquarters Building, work of this kind could be carried on continuously. Such work would be an efficient means of combating the "drugless" drug store idea. It would help to inspire and sustain the confidence of medical men and nurses. It is an opportunity to show what pharmacy means to the world. We have a

"fire prevention week," a "health week" and many others; why not a "Pharmacy Week?" Let us finish up this Pharmacy Building project, so that we will have an institution ready to do all of these fine things that must be done for pharmacy and the retail druggist.

Milwaukee Travelers Start Campaign: Under the heading "Brother Traveler—Hear Ye—Hear Ye," President Joseph W. Hall of the Wisconsin Pharmaceutical Travelers' Assn. has issued a splendid letter to all of their members urging support for the Pharmacy Headquarters Building. The letter calls attention to the fact that all of the state associations and many of the travelers' associations have subscribed to this great project. The Maryland Travelers' Association subscribed $500.00. In part the letter reads as follows; "Wisconsin in all affairs of National interest has stood out in the limelight, and we travelers, who 'Carry the message to Garcia' must keep up our good reputation by supporting this building fund. Don't let them say that all of the travelers' associations contributed except Wisconsin. But instead say that the Travelers from Wisconsin went over the top!"

A "Ball of Fire" and "An Oil Heater in Each Pocket." That is the way A. Kiefer Mayer, Chairman of the Committee on Education of the N. W. D. A., characterizes your Publicity Director. Mayer is putting it strong, but we just want to call attention to one fact, and that is this—if every wholesale, retail and manufacturing druggist in the country would put a little "oil heater" in his pocket and turn on the steam for this Headquarters Building project for 24 hours, American Pharmacy, in less time than it takes to tell, would change from a position of obscurity to one of the most important, most recognized and most influential organizations in the country.

All branches of American pharmacy have coöperated in this great project. The manufacturers and retailers have especially given loyal support. Some of the wholesalers have already been far-sighted enough to grasp the significance of this great project. Some have made the mistake of looking on this proposition as a sort of compliment to someone and not of vital importance to them. As a result a few wholesalers have made contributions entirely out of proportion to their position, or to what is being contributed by others.

The campaign committee does not propose to tell any one how much to subscribe. This is a united effort and every one should give all he can and make his subscription, if possible, in keeping with others.

BULLETINS OF THE DRUG TRADE BUREAU OF PUBLIC INFORMATION.

Director Robert P. Fischelis has issued Bulletins C-21 to 26 of the Drug Trade Bureau of Public Information.

Bulletin C-21 gives publicity to the American Pharmacy Headquarters' Campaign. Up to April 20 nearly 200 subscriptions were reported to the fund of $100,000, which is being raised by the New York State Committee as its quota in the $1,000,000 sought by the AMERICAN PHARMACEUTICAL ASSOCIATION. The bulletin also speaks of the fine work being accomplished and the whole-hearted support by all divisions of the drug trade. Director Nicolai expressed the belief that the final returns would show that New York had exceeded its quota.

Bulletin C-22 explains in detail the system which required the sending of separate registered envelopes for procuring certificates of confirmation to local Prohibition Directors.

Vendors of all kinds of intoxicating liquors, except quantities of ten gallons or less of alcohol, were affected by the rule, which has now been amended so that a vendor may inclose in one envelope all requests for confirmation mailed to a Director in a single day.

The cost to wholesalers of sending many registered envelopes instead of one was summed up by W. L. Crounse, Washington representative of the National Wholesale Druggists' Association, to J. J. Britt, chief counsel of the Prohibition Commissioner, as follows:

"On the basis of some 70,000 possible purchasers of alcohol placing monthly orders the total number of such orders annually received would approximate 840,000 which at twelve cents each—ignoring the expense of clerk hire, etc., involved—would amount to more than $100,000, or an average of $400 each for the two hundred and fifty active wholesale drug houses in the United States."

Bulletin C-23 relates to the census of pharmaceutical research by Dr. H. V. Arny.—See May JOURNAL, A. PH. A., pp. 434–443.

Bulletin C-24 announces the fund available for research by the AMERICAN PHARMACEUTICAL ASSOCIATION.—See May JOURNAL, A. PH. A., p. 423.

Bulletins C-25 and C-26 relate to the Remington Honor Medal Award.—See pp. 448 and 454, May JOURNAL, A. PH. A., also see this issue of the JOURNAL.

BLOOD - ISOTONIC CONCENTRATIONS OF VARIOUS REMEDIAL AGENTS.

These have been determined by cryoscopic methods by E. Raith and E. Wischo, who give in the following table the physiological concentrations of the remedies that are usually employed by injection. In the first column of the table the concentrations, cryoscopically determined, of the remedies as ordinarily found in the pharmacy, are given; the second column gives the values obtained with dried (dehydrated so far as possible) preparations, determined experimentally; the third column gives the blood-isotonic concentrations as determined from the proportions of the molecular weights; and the fourth column gives the figures for the concentrations as given in literature:

	1	2	3	4
Sodium Chloride	0.85	..	...	0.55
Sodium Bromide	1.90	1.50	1.496	2.00
Potassium Bromide	1.77	..	1.72	..
Sodium Iodide	2.35	2.15	2.19	..
Potassium Iodide	2.45	..	2.41	1.50
Sodium Bicarbonate	1.30	..	1.22	0.90
Disodium Phosphate	4.50	..	...	1.10
Sodium Sulphate	1.65	..	...	1.00
Magnesium Sulphate	3.80	..	...	..
Sodium Salicylate	2.35	..	2.30	1.55
Sodium Tartrate	2.60	..	...	2.00
Dextrose	5.00	4.85	4.805	3.20
Cane Sugar	10.29	..	9.13	6.00

1. Blood-isotonic concentrations of commercial preparations determined cryoscopically. Gm. substance per 100 cc. water.

2. Blood-isotonic concentrations of dried substances.

3. Blood-isotonic concentrations calculated from molecular weights.

4. Blood-isotonic concentrations as given in literature.—*Pharm. Ztg.* through *Merck's Report.*

UNPUBLISHED PREPARATIONS FOR "ORGANIC SYNTHESES."

The suggestion has been made that "Organic Syntheses," an annual publication of satisfactory methods for the preparation of organic chemicals, can increase its scope of usefulness by making available directions for preparations which have been submitted for future volumes.

The following is a list of some of the preparations which are now being checked by the editors. Those who wish a copy of directions for some of the listed preparations can procure the same by writing to Henry Gilman, Iowa State College, Ames, Iowa.

Acetamidine	*1* - Methyl-*2*-pyridone
Acrolein	Myristic acid
Benzal pinacolone	Naphthaldehyde
Benzylaniline	Phenyl isothiocyanate
m-Bromobenzyl chloride	*sym*-Phthalyl chloride
o-Bromotoluene	Propionaldehyde
α-Cyano-β-phenyl-acrylic acid	Pyromellitic acid
Cyclohexyl-bromo-propene	Pyrrol carboxylic acid
Furoic acid	Thiophosgene
Hydroxylamine base	Thymoquinone
p-Iododimethylaniline	*o*-Toluamide
p-Iodoguaiacol	*m*-Tolylene diamine
Mandelic acid	Viscose

NATIONAL HEALTH COUNCIL.

A conference of the National Health Councils coöperating with the Associated Advertising Clubs of the World was held in New York during the week of May 5. A resolution was adopted condemning deceptive advertising and, specifically, of that relating to cures for tuberculosis, cancer and venereal diseases. Surgeon General Hugh S. Cumming presided.

TETANUS FROM VACCINATION DRESSINGS.

The Public Health Service deprecates the use of any kind of shield as a vaccination dressing. The employment of such a shield tends to prevent evaporation; to retain heat, moisture, or discharges, with a consequent softening of the vesicle; to obstruct lymphatic drainage; to produce hyperemia, and to create conditions apparently favorable for the development of bacterial invasion, especially by the tetanus organism. The smallest single site insertion compatible with a successful take and with no immediate dressing whatever is believed to be the best method of vaccination in the majority of cases. *Public Health Reports*, March 20, 1925.

GENERAL WOOD MAKES AN APPEAL FOR $1,000,000 FOR CARE AND TREATMENT OF LEPERS.

The treatment of leprosy in the Philippines, and elsewhere, has been successful in many cases. As a result Culion is being looked upon by the afflicted as a place of hope, instead of dread, as formerly. There are about 12,000

lepers in the Philippines, a smaller number in the Hawaiian Islands, and a comparative few in this country. There is absolute assurance of improvement in most cases and a highly gratifying number of cures have been reported.

Contributions may be made payable to the Chief of the Bureau of Insular Affairs, War Department, Washington, D. C. They will be transmitted to the Philippine Islands and spent under the direction of the Governor General.

THE EDWIN SMITH PAPYRUS.

The New York Historical Society is in possession of the oldest scientific book in America, probably the oldest nucleus of scientific medical knowledge in the world. The document is known as the Edwin Smith Papyrus, an Egyptian medical treatise of the seventeenth century before Christ. It is being translated by Professor James H. Braested of the University of Chicago, noted Egyptologist, who is now in Egypt. It is said that the Edwin Smith Papyrus is more important in its scientific value than the three other well-known Egyptian documents dealing with the same subject, two of which, the Papyrus Ebers and the Berlin Medical Papyrus, are in Europe. The third, the Hearst Papyrus, is in the United States.

MUSEUMS AND LIBRARIES.

Museums devoted to the professions and industries, and libraries that serve them, are being established everywhere. The interest to have these institutions specialize has been growing because of a recognition of their value for research. When the individuals grasp the significance of their trade or profession they lift it to a plane of eminence. The schools and colleges of pharmacy have libraries and museums and they serve the members, and also in a larger way. In most of the large cities there are medical libraries. American pharmacy should and will have a library in the Headquarters' building, and also a museum that will depict the progress of pharmacy.

There are various ways of recording history; the history of American Pharmacy is now being written and will reflect credit on the compilers and the Association. Photographs, lantern slides, and motion pictures of individuals and their activities, of analytical and manufacturing processes, growing plants, development of crystals and the like; exhibits of drug-yielding plants; apparatus, whether used by a known member who has ceased his labors or whether illustrative of development, used in the past or now—all have historical values and will be part of the museum of the Headquarters, and will contribute to the publicity needed for pharmacy, without which other activities will continue to receive credit for achievement that rightfully belongs to pharmacists and pharmacy.

The National Museum of Engineering and Industry, of which Samuel Insull was chosen President for the coming year, is undertaking a campaign to raise $10,000,000 for museums of industry to be erected in the principal industrial centre of each state of the Union.

The proposed museums will demonstrate by working exhibits all of the industries of the country. The primary purpose, it is said, is to serve the youth of the nation; to provide a vocational guidance to make it possible for young people to determine what occupations they are best suited to prepare for.

The local museums will contain replicas of the exhibits at the National Museum of Engineering and Industry, which is to be established on the Mall in Washington.

A new museum has just been opened at Munich, Germany. The British Empire Exhibition at Wembley has been re-opened; the Sesqui-Centennial in Philadelphia expresses a national view of the value of exhibits. By the acquisition of the historic Library of History—the Henry Charles Lea Library—the University of Pennsylvania has doubled its collection of books published prior to 1500. Work has begun on the Thomas Paine Memorial Museum. The Hall of Fame attracts the attention of those who seek to memorialize those who were preëminent in their vocations; we have sought such recognition for the pharmacist-physician, Crawford W. Long, but the honor was awarded to another; a memorial tablet at the University of Pennsylvania, however, gives the honor to the former. This year our efforts have been directed in favor of Lyman Spalding, the "father" of the U. S. Pharmacopœia—we are awaiting the results of the vote. The estimate the public places on pharmacy is largely based on our appreciation.—Let us express it publicly and permanently by the Headquarters' Building. DO YOUR PART.

BUSINESS ITEMS.

William Feather, "Business Philosophy" says in *Philadelphia Public Ledger* that—"What people spend makes up to-day's sales

from which come to-day's profits. What people save flows into the great prosperity fund which keeps business moving, which creates new production, which returns more wages, which enhances purchasing power. Wise spending creates to-day's gains. Wise saving promotes permanent business—expanding business."

The United States Census Bureau has issued a rather interesting set of figures showing the average number of customers to each of the various types of retail stores. The number per drug store is given as 1341. The number for grocers is given as 449, and for shoe stores, 4763, five and ten cent stores, 18,013, and book stores, 35,402.

State Associations have been very successful with their drug shows, evidenced by continuing the plan; they are invariably features of the N. A. R. D. meetings, and the exhibits at the American Medical Association conventions are certainly very interesting. Recently a wholesale drug firm held a "Merchandise Fair Week." The exhibits were good; the items on display were explained, and speakers discussed problems of retail buying and selling. A banquet was provided for 500 visitors; during the week about 1500 druggists attended; evidently a successful venture.

The most extensive coöperative plan whereby the public is informed relative to pharmacy and the drug business, is that of the Northwestern Pharmaceutical Bureau. Periodical bulletins are issued relating to items of interest which are displayed in the stores. The Texas Pharmaceutical Association has been very successful with its advertising campaign in several magazines and in daily and weekly papers. Coöperative advertising has also been conducted in Louisiana, Mississippi, Tennessee, Arkansas and other states. In Arkansas the American Pharmacy Headquarters was featured. In a booklet on "Pharmacy Week" three windows are shown—one illustrates assay processes, another, pharmaceutical textbooks, and a third, pharmaceutical manufacturing. Plans for featuring "Pharmacy Week" are outlined; the value of the latter publicity depends on professional observance.

The campaign of education carried on by individuals and associations will mean much to the drug business and pharmacy, and under right procedure it may be accepted that the chain stores have no advantage over the independent stores.

Dayton, Tenn. has become famous because of a group of young men who discussed subjects of the day in the Main Street drug store. The teacher was forced into becoming the victim, it is said, and now these friends have rallied to his assistance. A country town argument has assumed national, if not international, importance.

It is announced that a research fellowship in the chemistry of perfumes and essential oils has been founded at Columbia University by Frederick E. Watermeyer and Frederick H. Leonhardt. The fellow is to be appointed by the university council, upon nomination of a committee of award composed of the president of Fritzsche Bros., and the senior professor of organic chemistry at Columbia, and approved by the department of chemistry. The fellow will receive $3000 per annum and the investigations will be conducted under the direction of Prof. Marston T. Bogert.

Fellowship for Research on Vitamins.—An industrial fellowship ($3200) has been presented to the University of Wisconsin by the Quaker Oats Company of America, to seek impartial data on vitamins in cereal grains and their products. It will become effective July 1.

Exports of toilet preparations from the United States during 1924 valued at $7,251,931 showed a continuation of the upward trend of foreign sales started in 1923 when exports exceeded imports by $1,000,000 for the first time in history, according to a report by the Department of Commerce on Western European markets for toilet preparations.

SELECTING EMPLOYEES.

The selection of employees is being given more consideration each year; cheap help is expensive in the long run, unless the individuals lend themselves to improvement, by observation and study. An improperly placed clerk becomes a drag on the business and often is detrimental to the sales morale of the store.

James Hoban, an official of the Typographical Union, addressed a meeting in Cleveland recently; the keynote of his address was—"Cleanse your mind just as you cleanse your body." "I cannot go forth in the morning," he said, "to meet the work of the day and expect to make a good job of it with a mind that has not been washed. I shouldn't think of going to my office without washing my face and brushing my teeth. I mustn't think of going to my office, then, without washing my mind.

"There are many unclean things to think about. There are many worthless, trivial, time-wasting things to think about. There are so many hateful, unhappy and irritating things to think about.

"Clear them all out. Brush them out. Wash them out. Go out in the morning with a clean mind ready for the reception of the day's important events."

The thoughts of some exployees are elsewhere and not concerned with the work before them and, thus engrossed, they cannot make good, nor be good examples for others. Training to serve has a greater significance in this day of larger business volume, and overhead expenses.

PERSONAL AND NEWS ITEMS.

Sir William S. Glyn-Jones Secretary British Pharmaceutical Society, etc., honorary member of the AMERICAN PHARMACEUTICAL ASSOCIATON, mention of whose visit has been made in prior issues of the JOURNAL, addressed members of the several divisions of the drug trade in New

SIR W. S. GLYN-JONES.

York and Philadelphia. The speaker outlined the progress toward price maintenance in England and its present effectiveness has government support. Reference is made in an editorial of this number of the JOURNAL, and parts of his address, made under other auspices, are printed in the May JOURNAL. The arrangement is somewhat along the lines of the tri-partite agreement of unpleasant memory in this country; the difference is largely that it works in England. Uniform prices will be established here within a few years, perhaps sooner. There is nothing fairer than reasonable profit for all dealers—manufacturers, wholesalers and retailers. There is nothing more unreasonable than to expect any of them to do business at a loss; profit must come from somewhere.

In Philadelphia, Sir William, Lady Glyn-Jones, daughter, and Mr. J. A. Kennington, Secretary and Treasurer of the Association of Manufacturers of British Proprietaries, and Mrs. Kennington, were guests of local pharmacists and their ladies. After dinner, Sir William addressed representatives of the drug trade at the Philadelphia College of Pharmacy and Science. Dean Charles H. LaWall introduced the speakers—first Mr. Kennington, who spoke briefly, and then Sir William, who delivered his message most interestingly and instructively, for he knows his subject and all that pertains to the plan in England and the difficulties that obtain with such legislation here, but these, in his opinion, can be overcome.

After attending the meeting of the Proprietary Association in Toronto, the visitors returned to England. The only expression of regret heard was that their stay could not be extended, and that it was impossible for Sir William to visit more of the larger cities in the United States. It should be stated that he is deeply interested in pharmacy and was highly pleased with his reception, his visit at the college, and inspection of several pharmacies, where he gained a different viewpoint from that given him by casual observance from the outside.

Prof. C. O. Lee, who has been in China for several years and will be remembered for his interest in the work of the Sections, will return to the United States in time for the Des Moines meeting.

Prof. A. B. J. Moore, of Montreal, sailed for Australia, May 27, for an extended visit.

Prof. Otto P. M. Canis was the guest at Fordham senior class banquet, June 6. He is retiring from the professorship of Materia Medica and Pharmacology. The female members of the student body presented the professor with a loving cup as an expression of their esteem.

Dean Jacob Diner attended the meetings of the American Medical Association during the last week of May, in Atlantic City.

Edward Sheely, chairman of N. A. R. D. exhibit committee, Memphis, and **Harold Gilbert,** of *The Druggist,* and chairman of the convention committee attended the meeting of the Arkansas Association of Pharmacists in Little Rock.

George V. and Mrs. Haering, Chicago, have arranged to join the tourists under the guidance of Editor Kantrowitz, leaving New York on July 9.

Dean Adolph Ziefle is delivering a series of lectures at the regular meetings of the Oregon Agricultural Chamber of Commerce. These were begun in April and include such topics as "First Aid," "Hygiene," "Sanitation and Health."

President F. R. Peterson, of the N. A. R. D., will be one of the speakers at Utah Pharmaceutical Association meeting in Cedar City, June 23 and 24.

Prof. Jeannot and Mrs. Hostmann celebrated the silver anniversary of their wedding April 16. A complimentary dinner was tendered these young people at Hotel Pennsylvania. Among the speakers of this happy occasion were Dr. Harry V. Arny, President Charles W. Holton of the A. PH. A., Charles J. McCloskey, trustee of New York College of Pharmacy and active in New Jersey pharmaceutical affairs, ex-president of the State Association, etc., and Ex-President S. L. Hilton of the AMERICAN PHARMACEUTICAL ASSOCIATION.

Following the dinner Dr. and Mrs. Hostmann further celebrated the event by a motor trip to Washington, Shenandoah Valley, Staunton, Monticello, Richmond (Va.) and Chapel Hill. While at Chapel Hill, Dr. Hostmann addressed the graduating class in pharmacy at the University of North Carolina.

Professor Hostmann is Chairman of New York Branch, A. PH. A., secretary of New Jersey Pharmaceutical Association, etc.

Dr. Leo. G. Penn, of Temple University, has contributed a message of action to the Campaign Committee of the American Pharmacy Headquarters. The matter of housing, in his opinion, is secondary to the coöperative work which will be carried on there.

Prescott R. Loveland, in a recent issue of the *Pharmaceutical Era,* has emphasized the importance and value of display advertising in this slogan "Show 'em and sell 'em, Hide 'em and keep 'em."

Herman A. Metz, of New York, has announced an offer of a prize of $100,000 to be given to the one who first produces morphine synthetically at a price lower than the natural product. The views of Dr. Metz are that morphine should be taken out of the realm of the agrarian and made a product of the laboratory where the distribution of the narcotic can be controlled.

The Carolina Journal of Pharmacy for May has as frontispiece a picture of our fellow-member **Edward L. Tarkenton,** of Wilson, N. C. A sketch accompanies the frontispiece; he is a member of Patterson Drug Company and was president of North Carolina Pharmaceutical Association, 1915–1916.

This fall a new building is to be occupied by North Carolina University School of Pharmacy. An interesting but brief sketch in the beforementioned publication speaks of the work of **Dean E. V. Howell.** Everyone of the regular attendants at the AMERICAN PHARMACEUTICAL ASSOCIATION meetings knows of the energy that characterizes the Dean. The growth of the institution is in a large measure due to the latter's determination to succeed wherever and whenever an advantage is to be gained for pharmacy. Many learned to know him better at the Asheville meeting and no one, perhaps, is better qualified to speak than the editor of the *Carolina Journal of Pharmacy.* In referring to the institution and the building, he says: "The price was an earnest man's complete giving of everything he had of body, mind and heart, to an enterprise that was begun in brains and purpose, found growth in zeal and effort, and is now full statured because Dean Howell willed with all his soul that it grow up to his ideal of what a college of pharmacy should be." The growth of North Carolina's A. PH. A. membership is referred to under Local Branches, in this number of the JOURNAL.

Caswell A. Mayo, in a recent issue of the *Merrell Messenger,* "snapshots" "N. A. R. D. officials off duty" and, in a succeeding number, treats some of the A. PH. A. members in like manner; all are very good but we are somewhat puzzled by the one of President Charles W. Holton and family.

Dean C. F. Heebner, of Ontario College of Pharmacy, for more than 25 years a member of the A. PH. A., closed his address to recent graduates by saying: "Remember that you are citizens as well as pharmacists. Take an interest in public affairs and in all movements that tend to right wrongs, and correct abuses, and share in the uplift of mankind. Have a true public spirit."

Theophilus Schmid, Chicago pharmacist, has been appointed a member of the Chicago Board of Education by Mayor Dever.

Secretary William B. Day is a grandfather, a daughter having been born to Mr. and Mrs. J. D. Carson of Chicago, May 1. The mother's condition was very serious for a time, but she is now recovering. Many members will remember Miss Charlotte, who attended a number of A. PH. A. meetings, and extend best wishes.

E. W. Runyon, one of the golden anniversary members of the A. PH. A., of New York, has recently returned from California and will join the pharmaceutical tourists July 9.

F. F. Berg recently returned from a six weeks' trip to Europe.

Miss Hazel B. Huhn, daughter of our fellow-member **Charles H. Huhn,** of Minneapolis, has been elected State Registrar for Minnesota by the Daughters of the American Revolution.

Townes R. Leigh, director of the School of Pharmacy, University of Florida, is chairman of the Florida Section of the American Chemical Society.

J. P. Gilmour, editor of the *Pharmaceutical Journal and Pharmacist;* **W. Harrison Martindale,** editor of "Extra Pharmacopœia;" **Prof. Emilé Perrot,** Paris, a Hanbury medalist; **Dr. J. G Gadamer,** successor to the late Prof. E. Schmidt; **J. J. Hofman,** secretary of the International Pharmaceutical Federation, have been elected honorary members of the Philadelphia College of Pharmacy and Science. **Dr. H. A. B. Dunning,** Baltimore; **Charles F. Kramer,** Harrisburg; **William P. Porterfield,** Fargo; **Joseph Rosin,** Philadelphia, and **Edward V. Sheeley,** Memphis, were awarded the degree of Master in Pharmacy by the same institution.

David F. Jones of Watertown, So. Da., has been sketched by Prof. Anton Hogstad, Jr. in a recent issue of the *Northwestern Druggist.* A paper by Mr. Jones is printed in the May JOURNAL, A. PH. A.

Prof. Anton Hogstad, Jr., has been given a year's leave of absence by the South Dakota Board of Regents. He will take up advanced work at the University of Minnesota. Mis-Dorothy Gaston, of the University of Washs ington, will take over the duties of Professor Hogstad at State College, So. Da.

OBITUARY.

AUGUSTUS J. WALTERS.

Augustus J. Walters, pharmacist at 461 Myrtle Ave., Brooklyn, N. Y., for about thirty years, died May 6, aged 51 years. He was a graduate of New York College of Pharmacy and studied for two years in the College of Physicians and Surgeons. He was well and favorably known in drug trade circles in the Metropolis, and was a member of the New York State Pharmaceutical Association and the AMERICAN PHARMACEUTICAL ASSOCIATION. He was also a director of the College of Physicians and Surgeons. He is survived by his widow, a son, Albert A. Walters, of St. Louis, Mo., and a daughter, Mrs. Cecil W. Mills.

D. W. HAYDON.

D. W. Haydon, Secretary of the New Mexico Board of Pharmacy, died February 25, of pneumonia. Mr. Haydon was born at Vevey, Ind., March 24, 1882, where he received his earlier education and graduated from high school and later from Winona School of Pharmacy, now Indianapolis University. He was active in the New Mexico Pharmaceutical Association and in the National Association of Boards of Pharmacy.

Mr. Haydon was appointed on the New Mexico Board of Pharmacy by Governor W. E. Lindsey, March 10, 1917, and served until April 1, 1919, when he resigned. He was again appointed in 1921, was made Secretary-Treasurer of the Board in 1922, and served well the interests of pharmacy in his State until the time of his death.

Secretary H. C. Christensen writes that the deceased did much for pharmacy in New Mexico and gave the National Association of Boards of Pharmacy splendid support; that a great loss had been sustained by the organizations.

MRS. MAUD L. A. FERN.

Mrs. Maud L. A. Fern, registered pharmacist, employed as a pharmacist at Alleghany Hospital, Cumberland, Maryland, died at that place on April 16, 1925. Her husband, John Fern, is in the government service in the Panama Canal Zone.

Mrs. Fern was a member of the AMERICAN PHARMACEUTICAL ASSOCIATION and of Virginia Pharmaceutical Association. She was buried in Norfolk, Va., her former home.

SOCIETIES AND COLLEGES.

RATES AND ROUTES TO DES MOINES MEETING OF AMERICAN PHARMACEUTICAL ASSOCIATION.

Chairman Turner F. Currens of the A. PH. A. Transportation Committee, recommends that the Chicago, Rock Island & Pacific be selected as the official route from Chicago to Des Moines. The trip to Chicago can be made via the Pennsylvania or New York Central with convenient transfer at Englewood Station or Rock Island Terminal.

Through car arrangements can be made for a party of 25. For an additional charge of $1.50 per person this car is held for the entire journey including the lay-over in Chicago. To make up the party of 25 Philadelphia members could join the party in Philadelphia, and Baltimore and Washington members join in Harrisburg if the trip is made via the Pennsylvania. Through car arrangements can also be made over the Baltimore & Ohio, in which case Philadelphia, Baltimore and Washington members could entrain at their respective cities. If through car arrangements are made, it will be necessary that all agree on the same time schedule. Members desiring to arrive in Des Moines Monday morning, August 24, should leave New York Saturday, August 22.

A train leaves via the Pennsylvania at 12:05 P.M.; arrives in Chicago at 9:00 A.M., which enables members to spend the full day in Chicago.

A B. & O. train leaves from Pennsylvania Station at 1:45 P.M. and arrives in Chicago at 2:40 P.M.

Trains leave Chicago at 9:00 and 11:00 P.M. and arrive in Des Moines next morning.

RATES.

New York to Des Moines—$45.59.

Round Trip (Convention Plan)—$68.39. To take advantage of the round trip rate the travel both ways is over the same route.

Pullman Lower—$12.75; Upper—$10.20. (One way.)

Drawing Room (2 tickets necessary)—$45.00.

For members desiring to make a trip farther west, through excursion tickets can be purchased with stop-over privilege at Des Moines. Your Chairman will be pleased to submit further details upon request or make any reservations desired.

It is suggested to members contemplating the trip by auto that they drive to Chicago and make the rest of the journey by train.

SCIENTIFIC SECTION A. PH. A.

The profit derived from a section meeting depends largely upon the ability to provide ample time for subject presentation and in order to accomplish this purpose careful planning of program is necessary.

Your officers believe that the value of section meetings can be greatly enhanced by the preparation of an abstract of your paper setting forth its salient points which will provide food for discussion by the membership.

This plan of procedure is urged upon the members since the popularity and quality of material presented at the meetings is ever increasing and must be included in the three sessions which are specifically provided by the By-Laws of the Scientific Section.

As a further aid to subject presentation all abstracts or papers which reach the Secretary in time will be multigraphed and be available for distribution to members on the days of the section meetings.

Subjects will be assigned space in the program in the order in which they are received; those not on hand at time program proof is forwarded cannot be assured inclusion.

If you have not already forwarded the title or completed paper do so at once.

PAUL S. PITTENGER, 5250 Market St., Philadelphia, *Chairman.*	F. F. BERG, 17 Columbia Heights, Brooklyn, N. Y., *Secretary.*

Contributors to other Sections should at once confer with officers of the respective Sections—the address will be found on p. X of the Roster in this issue of the JOURNAL.

THE 1925 REMINGTON HONOR MEDAL AWARD.

The 1925 Remington Honor Medal was formally awarded to Dr. H. M. Whelpley, of St. Louis, May 25, 1925. A testimonial dinner was tendered the recipient at Hotel Pennsylvania; Mrs. Whelpley, who has attended almost as many A. PH. A. conventions as the medalist, graced the occasion.

President Jeannot Hostmann, of the New York Branch, A. PH., A. presided and the following were present:

Dr. Wm. C. and Mrs. Anderson, Dr. H. V. and Mrs. Arny, Prof. E. F. Cook, Mr. T. F. and Mrs. Currens, Dr. George C. Diekman, Dr. H. A. B. Dunning, Dr. M. Ditmar, Dr. W.

H. Gesell, Dr. S. L. and Mrs. Hilton, Mr. Chas. W. and Mrs. Holton, Dr. Jeannot and Mrs. Hostmann, Dr. F. B. Kilmer, Dr. J. Leon and Mrs. Lascoff, Prof. C. H. LaWall, Mr. F. F. and Mrs. Berg, Mr. R. S. and Mrs. Lehman, Mr. J. and Mrs. Nixon, Mr. H. B. and Mrs. Shattuck, Prof. F. P. Stroup, Dr. H. M. and Mrs. Whelpley, Dr. C. P. and Mrs. Wimmer, Messrs. C. O. Bigelow, V. K. Commons, R. S. Dyer, E. G. Eberle, C. L. Eddy, H. Gaffney, R. R. Gerstner, S. B. Groisser, M. J. Harnist, A. Heimburger, H. Kantrowitz, E. J. Kennedy, R. R. Lampa, C. J. McCloskey, N. Nicolai, F. W. Nitardy, E. W. Runyon, G. F. Siemers, H. B. Smith, R. H. Timmerman, Theodore Weicker and E. A. Wickham.

The function was a most enjoyable one; many letters and telegrams were received and read from absentees. Secretary Hugo H. Schaefer, who shares in the honor of instituting the memorial, who is at present in Switzerland, completing advanced studies, was remembered on this occasion.

President Hostmann in opening the after-dinner program referred to the founding of the medal, of those who had received like distinction, and then made brief introductory remarks in presenting the speakers.

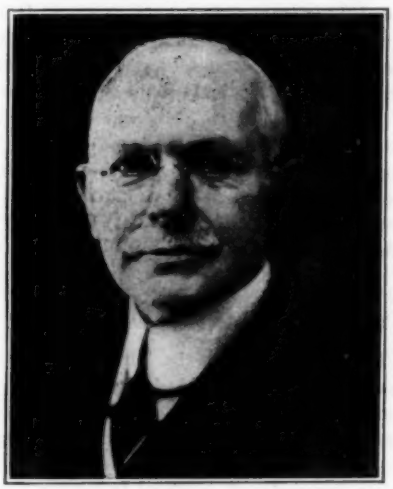
President Charles W. Holton spoke of the honored guest in his connections with pharmaceutical organizations. Even though years would not have suggested the attendance of so very many meetings by the President it was to him a source of great pleasure to have attended quite a number before arriving at membership age. He was, therefore, in position to speak of his impressions of Dr. Whelpley, gained in youthful years and as an associate. Ex-President Samuel L. Hilton spoke of work done by the recipient in promoting pharmaceutical education and Dr. W. C. Anderson, in a happy vein dwelt on "Whelpley's Non-Pharmaceutical Activities" and after having used his darts of jest in a pleasing and effective way he closed with a beautiful tribute to the friend of many years.

The presentation of the medal was made by a former recipient, Dr. H. V. Arny, as comrade and fellow, and the speech of acceptance by Doctor Whelpley is printed elsewhere in this number of the JOURNAL.

Mrs. Whelpley spoke briefly and expressed appreciation of the friendships which had added much to their lives. The Branch officers and reception committee have placed on record another enjoyable "Remington Evening."

PRESIDENT-ELECT L. L. WALTON HONORED BY HIS FELLOW-CITIZENS, FRIENDS AND CO-LABORERS.

There are events in the lives of all men that stand out above all other preferments and it seems to this observer the testimonial given to President-elect L. L. Walton of the A. PH. A., May 20, is such an event in his life. The citizens of Lycoming County came to do him honor; all the drug stores of Williamsport closed their stores so proprietors and assistants could attend the dinner; the doctors were well represented and all of the members of Lycoming Medical Society attached their signatures to an expression of high regard in a leather-



PRESIDENT-ELECT L. L. WALTON.

bound book neatly embossed and attested by the seal of the Society. Those who participated in the testimonial dinner gave the honor guest a gold watch. Mrs. Walton was presented with a basket of beautiful flowers.

It is certainly worthy of comment that the response to do honor to a fellow-citizen was unanimous.

Willis C. Dice presided as toastmaster; songs interspersed the addresses by—Dean Charles H. LaWall, on "Mr. Walton, the Pharmacist;" "Responsibility" by President John P. Harley of Lycoming Medical Society; Ambrose Hunsberger, "The Association Worker;" Otto W. Osterlund, "The Board of Pharmacy Member;" Dr. Robert K. Rewalt, "Coöperation;" A. Monroe Hall, "The Employer." Rev. Elliott C. Armstrong gave the Invocation;

Hon. W. Clyde Harer responded with a vocal solo. The honored guest took as his subject "God Pay, Man Pay and Money Pay;" wherein he expressed appreciation of his friends and fellow-citizens. There were visitors from surrounding towns and cities, from Pittsburgh and Philadelphia, and many letters and telegrams from others were read.

AMERICAN PHARMACEUTICAL ASSOCIATION MEMBERSHIP AWARDS.

The JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION will be pleased to print the names of nominees for membership in the Association of the schools and colleges of pharmacy.

The Massachusetts College of Pharmacy awarded a membership prize to Nimr B. Hobica for proficiency in Pharmacy, the prize being offered by Professor La Pierre. The membership prize for Analytical Chemistry was awarded by Dean Bradley to Malcom J. MacLeod; that in Organic Chemistry by Treasurer Godding to Carolina C. Bianchi; that in Materia Medica by President Glover to Edward M. Altman; that in Commercial Pharmacy by Adolf H. Ackermann to Joseph H. Goodness.

INTERNATIONAL CONGRESS OF MILITARY MEDICINE AND PHARMACY.

The attendance at the Third International Congress of Military Medicine and Pharmacy was larger than that of the two preceding meetings—more than 2500 were present. It is said that there were delegates present from thirty-five nations; Medical Inspector General Vincent (France) presided and the sessions were held in Paris April 20–25.

INTERNATIONAL PHARMACEUTICAL FEDERATION.*

The general meeting of the International Pharmaceutical Federation will be held in Lausanne towards the end of July. At this meeting Sir William Glyn-Jones, MM. Loisel (France) and Daminet (Belgium) will present their report on the proposed basis for an international regulation of the manufacture and sale of pharmaceutical specialties. It is proposed to invite the British and French delegates to a preliminary discussion on this report in Brussels. The Belgian Nationale Pharmaceutique is opposed to the tendency evinced by the professional organizations of several countries in favor of delegating the supervision over the manufacture and sale of pharmaceutical specialties to a government department and insists that this control should be vested in the pharmaceutical profession.

* See p. 61, January JOURNAL, A. PH. A.

THE GREEK CURRICULUM.

The pharmaceutical curriculum in Greece has recently been remodeled. Candidates are now required to undergo a four years' course of study in the Pharmacy Section of the Faculty of Physical and Mathematical Sciences in the National University of Athens.

The number of pharmacies in Greece is limited. One pharmacy is allowed for every 2000 inhabitants in cities of less than 20,000 population. In the larger cities one pharmacy is allowed for 2500 population.

OFFICERS OF KANSAS PHARMACEUTICAL ASSOCIATION.

The following officers of Kansas Pharmaceutical Association were elected at the Wichita meeting: *President*, Charles H. Andrews, Jr., Wichita; *First Vice-President*, Frank Shoemaker, Fort Scott; *Second Vice-President*, A. D. Laughlin, Concordia; *Treasurer*, John Schmitter, Gypsum; Dean L. E. Sayre, Kansas University School of Pharmacy, Lawrence, *Librarian*. J. Will Kelley, of Topeka, will continue for another year as *Secretary-Manager* of the association.

Topeka was selected as the meeting place for the 1926 convention.

OFFICERS OF OKLAHOMA PHARMACEUTICAL ASSOCIATION.

The following officers were elected at the recent annual meeting of Oklahoma Pharmaceutical Association: *President*, H. S. Caldwell, Oklahoma City; *First Vice-President*, Cecil Stewart, Tulsa; *Second Vice-President*, J. R. Dutton; *Secretary-Treasurer*, A. J. Shackelford, Wynnewood.

Tulsa was selected for the 1926 convention.

FOREIGN TRADE CONVENTION.

The 12th annual Trade Convention will be held at Seattle, Washington, June 24 to 26. Delegations of business men from Japan, China, India, Straits Settlements, the Dutch East Indies, and the Philippines, have accepted invitations. The discussions will relate to all subjects of trade, perhaps more particularly representing the commerce of the Pacific and the Far East, and South American countries.

DANIEL HANBURY.

Daniel Hanbury was elected an honorary member of the AMERICAN PHARMACEUTICAL ASSOCIATION in 1868. He died fifty years ago, March 24, 1875, in the fiftieth year of his age. Soon after his demise the Hanbury Memorial Fund was established, and two of our American pharmacists have been honored by receiving this medal, namely, Professor John M. Maisch and Dr. Frederick B. Power.

The well-known "Pharmacographia" by Flückiger and Hanbury appeared about five months before the latter's decease.

DANIEL HANBURY.

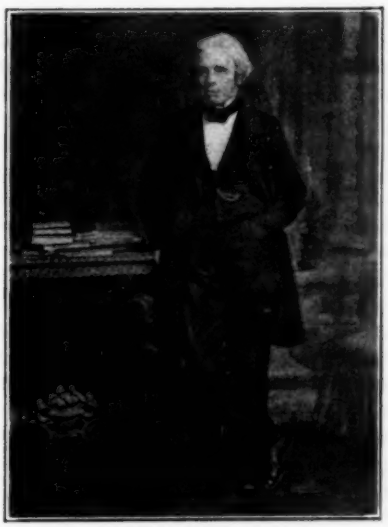
As the *Chemist and Druggist* of May 15, 1876, said—"It was given to Hanbury's untiring zeal to clear up practical points in pharmaceutical natural history, in reference to which others had exerted themselves in vain.

DR. WILLIAM H. WELCH CELEBRATED 75TH BIRTHDAY APRIL 8.

Nations have given Dr. William H. Welch all the honors at their command. The New York Times said editorially of him: "What the legendary god of medicine, Aesculapius, was to Greece somewhat over two thousand years ago, that genial and actively living personage, Dr. William H. Welch, at 75 years of age, is to America today. As a young Professor of Pathology at Johns Hopkins he made immediate application of the discoveries and methods of Pasteur and Koch, and from his classes the young army officer, Walter Reed, went forth to a victory as glorious as any won in war, leading to his own death, but to the banishment of yellow fever from great areas. Dr. Welch's books and lectures and conferences have been infinitely more potent in combating disease than the Sibylline books which commanded the worship of Aesculapius in Rome in order to avert a pestilence."

BENZENE CENTENARY.

Michael Faraday reported the discovery of benzene to the Royal Society, June 16, 1825. As the foundation of a large section of organic



MICHAEL FARADAY.

chemistry, the subject interests pharmacists. Faraday owes much to Davy, for he secured for him the place as assistant in the laboratory of the Royal Institution. In later years the friendly relation of the two scientists was somewhat strained, a situation brought about by Faraday's discovery of the condensation of gases.

The centenary will be celbrated in London, and representatives from other countries will be present. President James F. Norris of the American Chemical Society will attend.

Under "Pharmaceutical Personalities" the *Druggists Circular* for May sketches our fellow-members **P. Henry Utech** of Meadville, Pa., and **Nicholas S. Gesoalde** of Brooklyn, N. Y.

THE PHARMACIST AND THE LAW.

STATES MUST GOVERN OR BE GOVERNED.

President Coolidge on Memorial Day at Arlington, emphasized the point that states must govern or be governed. He said in part:

"The individual and the local, State, and national political units ought to be permitted to assume their own responsibilities. Any other course in the end will be subversive both of character and liberty. But it is equally true that they in their turn must meet their obligations. If there is to be a continuation of individual and local self-government and of State sovereignty, the individual and locality must govern themselves and the State must assert its sovereignty. Otherwise these rights and privileges will be confiscated under the all-compelling pressure of public necessity for a better maintenance of order and morality. The whole world has reached a stage in which, if we do not set ourselves right, we may be perfectly sure that an authority will be asserted by others for the purpose of setting us right."

The President also referred to the multiplicity of laws; the varied possibilities of all appeals; the disposition to technicality in procedure; the delays and consequent expense of litigation which inevitably inure to the advantage of wealth and specialized ability. The President said that these conditions point to the necessity for simplification and codification of laws, for uniformity of procedure, for more accurate delimitation of state and federal authority.

In speaking of the same subject before the United States Chamber of Commerce, Chief Justice Taft said that public opinion was necessary for enforcement of laws, and that one of the difficulties in securing the useful aid of public opinion was the lethargy of the average citizen. He said it was not enough to have intelligent men in our citizenships, nor to spread education, we must also arouse the active interest of those who must be individual units of the many whose united views are public opinion.

REORGANIZATION OF THE PROHIBITION UNIT.

According to press items of April 29 a reorganization of the prohibition unit is in prospect, indicated by Assistant Secretary Andrews, as a result of the month's study he has given the bureau since he assumed office. He did not disclose the nature of the changes to be made, but reiterated that Commissioner Haynes will remain for the present in charge of enforcement. There was every reason to predict satisfactory coördination between Mr. Haynes and his own office, the Assistant Secretary declared.

The new field marshal of prohibition decried reports that he would be "hard boiled" in putting through the proposed reorganization. What was intended, he explained, was to give trusted workers encouragement and support and to weed out the crooks and others who are not functioning in the interest of law, and "to eliminate sentiment."

OHIO COURT OF APPEALS RULES PHARMACIST MUST BE IN CHARGE OF PHARMACY.

The Franklin county court of appeals affirmed the Columbus municipal court in fining E. W. Harrington, a King avenue druggist, for violating the state law requiring a pharmacist to be "in full actual charge" of a drug store, or to have a registered pharmacist in charge of the store. The case is a test one, arranged to determine whether a registered pharmacist who owns a store may leave the store in charge of an assistant who is not a registered pharmacist.

STATE LEGISLATION.

Idaho has amended its pharmacy law to include prerequisite college graduation requirement of Board of Pharmacy candidates.

West Virginia, likewise, has adopted such requirement, and assistant pharmacists must have passed the final examinations of at least one year in a recognized school of pharmacy.

Michigan also has adopted the prerequisite, to become effective in 1929. Michigan will require that after July 1, 1927 persons desiring to apply for "registered assistant pharmacist" examination must produce evidence that they have completed twelve grades of school work, and, after September 1, 1925, all aliens applying for "registered pharmacist" examination must produce evidence that they have declared their intentions of becoming citizens of the United States.

"No person shall hereafter carry on, conduct or transact business under a name which contains as a part thereof the words drugs, drug-store, or pharmacy, or in any manner, by advertisement, circular, or poster, sign, or otherwise, describe or refer to the place of business conducted by such person by the terms drugs, drug-store, or pharmacy, unless the place of business so conducted be at all times in charge of a registered pharmacist, or during the temporary absence of such registered pharmacists in charge of a registered assistant pharmacist. Every person violating any provision of this section shall be guilty of a misdemeanor, the minimum punishment whereof shall be a fine of fifty dollars."

PRICE MAINTENANCE ADVOCATES WILL PREPARE A BILL TO BE PRESENTED TO CONGRESS.

A committee has been organized, to represent the public and the trades, for the preparation of legislation for protection of re-sale prices, for submission to the next session of Congress. The action was the result of a conference in Washington of representatives of the American Free Trade League, the Chamber of Commerce of the United States, and trades and industries interested in a satisfactory price maintenance measure, among them all divisions of the drug trade.

BOOK NOTICES AND REVIEWS.

Allen's "Commercial Organic Analysis," 5th Edition, Revised and in part rewritten, Editors: Samuel S. Sadtler, S. B., Elbert C. Lathrop, A. B. Ph.D., and C. Ainsworth Mitchell, M.S., F.I.C. Volume III. 36 illustrations. 8 vo. IX + 732 pages. P. Blakiston's Son & Co., Philadelphia. Cloth, $7.50.

Volume III of the 5th Edition comprises practically the same scope as that of the 4th Edition. "Benzol and Its Homologues" which in the latter was included in the chapter on "Bitumens" has been omitted and will appear along with "Dye Intermediates and Dyes" as a special chapter in a later volume.

Such a volume as this, almost cyclopaedic in character lends itself with great difficulty to a brief review. The entire subject matter seems to have been very thoroughly revised and rewritten and brought very much up to date.

H. E. Cox, M.Sc., Ph.D., F.I.C., of Newport, England has rewritten chapter I, "The Hydrocarbons." Methods for the detection and determination of Aliphatic Hydrocarbons, Paraffins, Olefines, Acetylenes, Aromatic Hydrocarbons, Tars and Pitch are given in detail. The latest approved methods of the United States Bureau of Mines and the American Society for Testing Materials are usually followed.

"Bitumens" are treated of in chapter II. The work on this chapter was practically completed by the author Dr. Samuel P. Sadtler before his decease. Methods for the qualitative and quantitative examination of, as well as descriptions and sources of Natural Gas, Petroleum and its Distillation and Distillation Products and Residues, Asphalt and its compounds are very complete.

W. A. Davis, B.S., A.C.G.I., Rock Ferry, England is the author of Chapter III comprising "Naphthalene and Its Derivatives."

Anthracene, Phenanthrene, Carbazol and other Constituents of the High-Boiling Fractions of Coal-Tar are discussed in Chapter IV by John H. Sachs, Ph.D. of Wilmington, Del.

In Chapter V, contributed by J. Bennett Hill, Ph. D. of Philadelphia, are included the Phenols, Cresols, Zylenols, Commercial Carbolic Acids, Dip and Flotation Oils, Creosote, Its Constituents and Derivatives, Commercial Disinfectants, etc. Descriptions and tests are very complete. The Rideal-Walker and Hygienic Laboratory Phenol Coefficient Tests as well as the methods adopted by the American Wood Preservers Association and the British Engineering Standards Association and many proved "commercial" methods are given in detail. Very comprehensive illustrations of necessary apparatus for the distillation test for "heavy oil" and the "Float Tester" are included. The methods for the complete examination of commercial disinfectants appear to be very exhaustive and satisfactory.

Chapter VI, "Aromatic Acids," written by Edward Horton, B.Sc., London, England, treats of Sulphonated Phenols, Benzoic and Salicylic Acids and their compounds and derivatives, the "aromatic" gums and resins, Coumarin, Vanillin, Saccharin, etc. Quite a number of so-called "Newer remedies," synthetic derivatives of salicylic acid have been included.

W. P. Dreaper, O.B.E., F.I.C., London, England, is the author of Chapter VII, Gallic Acid and its Allies.

Phthalic Acid and the phthaleins comprise Chapter VIII, contributed by the author of

Chapter III. In connection with the use of phenolphthalein as an indicator, a rather satisfactory discussion of the subject of indicators has been included.

A. Marshal, F.I.C., contributes Chapter IX, Modern Explosives. As might be expected, in a work so thoroughly revised, a great amount of new material is found in this chapter in which the number of pages has been more than doubled. All of the "newer" explosives seem to be included.

The bibliography at the end of each chapter appears usually to be complete, the bookwork is of very good quality, a very important factor in work of this kind which should ever be at hand and will undoubtedly often be consulted by the general analyst as well as those specializing along the lines covered therein.

JEANNOT HOSTMANN.

Homöopathisches Arzneibuch. Auzählung und Beschreibung der homöopathischen Arzneimittel, nebst Vorschrift für ihre Bearbeitet, Prüfung und Wertbestimmung. Bearbeitet und herausgegeben von Dr. Willmar Schwabe, Leipzig. 2 Ausgabe, 1924. Lex. 410 pp. Half Leather, Gold-Mk. 16.

As early as 1872 Dr. Willmar Schwabe, a recognized authority on homoeopathic pharmacy the world over published his *Pharmacopœa Homœopathica Polyglota*, at first in three, then in five, and last in seven different languages. The rapid progress during the past few decades in all sciences, including homœopathy, made a new edition advisable and necessary, which is just off the press, under the plain title *Homœopathic Pharmacopœa*. The work is from the pen of an authority on this subject, a man who ownes one of the largest retail, wholesale and export homœopathic pharmacies in the world. The division of the book is as follows:

I. Homœopathic Pharmacy: Location, Laboratory, Utensils, Manufacture, Dispensing, Nomenclature, Methods of Chemical Assay and Capillary Analysis.

II. The Most Important Homœopathic Medicaments. This most valuable part occupies 323 pages. How complete and thorough the monographs are prepared can be seen from the one on *Hydrastis* which occupies a full page and contains Botanic Origin, Habitat, Part Used, Description, *i. e.*, reference to German Pharmacopœia, Preparations, Characteristics, Assay, Capillary Analysis, Strength of Tincture, Literature.

III. Appendix: The Less Important Homœopathic Remedies. Table B: Poisons, Table C: Potent Remedies, Quantitative Analysis of Sugar according to Allihn, Synonyms and Index.

The author deserves special credit for the use of 45% Alcohol as a diluent in many low potencies and in all the high potencies above 4 X. The paper, printing and binding are excellent, far superior to many a "Government Pharmacopœia."

The book is a real master work and we hope that it will become known, or better known in the United States.

OTTO RAUBENHEIMER, PH.M.

Organic Medicaments and Their Preparation. By Ernest Fourneau, Head of the Laboratory for Therapeutical Chemistry in the Pasteur Institute; member of the Academy of Medicine; formerly director of the Poulene Laboratories. The English edition has been prepared *i. e.*, translated by W. A. Sylvester, chemist with the British Dyestuffs Corporation, Ltd. Prefaces by Émile Roux, Director of the Pasteur Institute, and George Barger, Professor of Medical Chemistry, University of Edinburgh. P. Blakiston's Son & Co., Philadelphia. 262 + pages. Price $4.25. In 1917, by request of the *Junta para Ampliacone de Estudios*, M. Fourneau went to Madrid to arrange and direct a course of theoretical and practical instruction in the synthesis of the principal organic medicaments; his part of the work was concluded with the coöperation of Professor Madanaveita, in Professor Carracido's laboratory, and this volume, *i. e.*, the French, is the result. The list of medicaments is not complete, but those that are treated evidence painstaking care of one thoroughly acquainted with his subject. Dr. George Barger in his preface to the English edition says that "M. Fourneau has long been known as a master of drug synthesis. Not only has he done much work of an academic kind, but as a former director of the Poulene Laboratories, he has also an intimate acquaintance with industrial practice."

The successive operations in manufacture are given in detail. The author brings into the subjects some interesting data that usually are not included; for example, in some of the technical considerations he includes prices, patents and secret processes. In the consideration of guaiacol, as an example of another kind, the author speaks of the why of its introduction and in the description of other processes the pharmacology and chemotherapy is brought to the attention of the chemist.

Part I is descriptive and divided into 14 chapters; the latter includes general remarks on pharmaceutical products and imparts a knowledge of the medicaments considered and of the relationship that exists between their chemical constitution and their physiological action.

Part II is concerned with the practical application of the knowledge in the manufacture of the chemicals—that of guaiacol; phenacetine by three methods; acetylsalicylic acid from salicylic acid; diethylbarbituric acid from ethyl malonate; preparation of the mercurials, arsenicals, alkaloids, glucosides, etc., etc.

The book is of practical value to all who have a scientific interest in drugs, whether as teachers, students, manufacturers or pharmacists.

Addresses on the Occasion of the Centenary Celebration of the Founding of the Franklin Institute and the Inauguration Exercises of the Bartol Research Foundation, September 17–19, 1924.—Practical Results of Theoretical Development of Chemistry, by Professor F. Haber; Recent Progress in the Science of Aeronautics, by Joseph S. Ames; Military Aircraft and Their Use in Warfare, by Major General Mason M. Patrick; Spectroscopy in the Past and in the Future, by Professor Charles Fabry; The Steam Turbine—As a Study in Applied Physics, by Sir Charles A. Parsons; Lightning, by F. W. Peek, Jr.; The Influence of J. Willard Gibbs on the Science of Physical Chemistry, by F. G. Donnan; The Carbon Atom in Crystalline Structure, by Sir William Henry Bragg; The Fifth Estate, by Arthur D. Little; The Natural and Artificial Disintegration of the Elements, by Professor Sir Ernest Rutherford.

Digest of Comments on the Pharmacopœia of the United States of America and on the National Formulary for the calendar year ending December 31, 1921. By A. G. DuMez. Government Printing Office, Washington, D. C., 1924. Treasury Department United States Public Health Service. Hygienic Laboratory—Bulletin No. 137.

Comments on each issue of this valuable publication have been made in these columns, and what has been said previously applies to this bulletin. The appreciation expressed by the National Drug Trade Conference, about a year ago, evidences the value of this work, and the same views are on record in the PROCEEDINGS of the AMERICAN PHARMACEUTICAL ASSOCIATION and of its Executive Committee. Resolutions by both of these organizations are printed on page 80 of the January JOURNAL of 1924. Pharmacists are indebted to Dr. A. G. DuMez, the editor and compiler of this and prior editions of the *Digest*.

Elementos de Farmacia Practica. By Dr. Ignacio G. Noble, *Secretary* of the National Pharmaceutical Association of Cuba, *Vice-President* of the Section on Pharmacy and Therapeutics of the 6th Medical Congress of Latin America, member of the AMERICAN PHARMACEUTICAL ASSOCIATION, etc., etc. Doce esquine á 21, Vedado, Habana, Cuba.

Dr. Noble has rendered a distinct service in the preparation of this volume for the pharmacists of Cuba and other Spanish-speaking countries. The author follows the lines of other pharmaceutical textbooks, first outlining medicine and pharmacy in its several divisions. Following these introductory statements, the various pharmaceutical processes are described. Solutions and solubilities are considered, the solvents, the effect of solutions, variations in solubility, and then follows a study of official processes in which the theories expounded are applied. The study of solutions is followed by methods of comminution and extraction. The means of providing heat, its measurement and application in pharmaceutical preparations, are next given attention, followed by a number of pages on metrology and arithmetic applied to pharmacy.

A chapter deals with pharmacopœias and the Brussels Conference, the strength of potent remedies in several pharmacopœias. The next chapter deals with pharmaceutical formulas, their preparation and compounding of prescriptions; other chapters are devoted to incompatibilities, newer remedies, doses, prescription writing, synonyms, ethics of the profession, antidotes, household remedies, etc.

The editor of the publication is M. Martin, Havana, Cuba. Doubtless the book has found many patrons among the pharmacists of Cuba and in other countries where Spanish is the official language.

Editor R. E. Dyer of *Practical Druggist* was tendered a luncheon by **Romaine Pierson,** the publisher, May 28. Dr. Geo. C. Diekman presided as toastmaster. The celebration commemorated twenty-three years of service as editor.

Prepare to attend the Des Moines Meeting, A. PH. A., week of August 24.

JUL 1 9 1925

1925 STATE PHARMACEUTICAL ASSOCIATION MEETINGS.*

STATE.	TIME.	PLACE.	PRESIDENT.	SECRETARY.	LOCAL SECRETARY.
Alabama	June 9–11	Sheffield	W. G. Fowler, Montgomery	W. E. Bingham, Tuscaloosa	C. O. Beasly, Florence
Arizona	October	Yuma	J. W. McCann, Tucson	Arthur G. Hulett, Phoenix	
Arkansas		Little Rock	E. R. Bradley, Hot Springs	Miss Mary A. Fein, Little Rock	
California	May 25–27	Del Monte	A. C. Tienken, Lindsay	T. W. Jones, Los Angeles	
Colorado	June 16–18	Manitou	Joseph P. Murray, Colorado Springs	Charles J. Clayton, Denver	
Connecticut	June 18–19	New London	Henry F. Ruby, Hartford	P. J. Garvin, New Haven	Ira Comstock
Delaware	June	Rehoboth Beach	John O. Bosley, Wilmington	Thomas S. Smith, Wilmington	
Florida	June 15–16	Lakeland	W. M. Hankins, Daytona	J. H. Haughton, Palatka	C. Henly
Georgia	June 18–19	Tybee Island	Jasper L. Brooks, Tifton	T. A. Cheatham, Atlanta	
Idaho		Pocatello	R. P. Cutting, Weiser	T. M. Starrh, Boise	
Illinois	June 16–19	Decatur	Fred L. Pfaff, Centralia	Wm. B. Day, Chicago	
Indiana	June 16–18	West Baden	Scott Kelly, Gaston	Wm. A. Oren, Indianapolis	
Iowa	January 28–29	Des Moines	Denny Brann, Des Moines	J. W. Slocum, Indianola	
Kansas	April 21–23	Wichita	Frank Milne, Pratt	J. Will Kelley, Topeka	
Kentucky	June 17–19	West Baden, Ind	W. J. Johnston, Mayfield	J. W. Gayle, Frankfort	
Louisiana	May 19–20	New Orleans	Warren E. Scott, Oakdale	George W. McDuff, New Orleans	
Maine	September 23–24	Poland Springs	H. R. Alden, Lewiston	James H. Allen, Waterville	
Maryland	June 23–26	Buena Vista Springs, Pa.	W. K. Edwards, Cumberland	E. F. Kelly, Baltimore	
Massachusetts	June 10–12	Swampscott	C. Fred Wright, Boston	James F. Guerin, Worcester	
Michigan	August 5–7	Muskegon	John Weisel, Monroe	Louis V. Middleton, Grand Rapids	Charles S. Koon
Minnesota	February 10–13	Minneapolis	Charles Johnson, Brainerd	Gustav Bachman, Minneapolis	
Mississippi	June 9–10	Biloxi	S. B. Key, Jackson	A. S. Coody, Jackson	J. A. Moss
Missouri	June 16–19	Hannibal	A. C. Schulte, St. Louis	C. C. Payne, Kansas City	Frank Greene, Jr.
Montana	July	Missoula	F. V. Patterson, Billings	J. A. Riedel, Boulder	A. F. Peterson
Nebraska	June 9–11	North Platte	A. E. Carlson, Dannebrog	J. G. McBride, University Place	
New Hampshire	September	Whitefield	A. O. Burque, Nashua	D. Leo Hallisey, Nashua	C. Henley
New Jersey	June 23–26	Spring Lake	Thomas K. Edwards, Dover	Jeannot Hostmann, Hoboken	Daniel H. Hills
New York	June 16–19	Niagara Falls	George R. Christ, Brooklyn	Edward S. Dawson, Syracuse	George F. Bigham, Buffalo
North Carolina	June 23–25	Blowing Rock	J. P. Stowe, Charlotte	J. G. Beard, Chapel Hill	J. G. Ballew, Lenoir
North Dakota	August 4–6	Grand Forks	P. H. Costello, Cooperstown	W. F. Sudro, Agricultural College	John Vold
Ohio	July 13–17	Cedar Point	Fred J. Mery, Toledo	Theo. D. Wetterstroem, Columbus	L. A. Biehl, Sandusky
Oklahoma	May 12–14	Oklahoma City	Don Machenheimer, Shawnee	H. S. Shackelford, Wynnewood	H. S. Caldwell
Oregan	June 16–18	Corvallis	A. J. Crosby, The Dalles	Frank S. Ward, Portland	Adolph Ziefle
Pennsylvania	June 16–18	Washington	Ambrose Hunsberger, Philadelphia	Louis Saalbach, Pittsburgh	F. C. Lewis
Rhode Island	January 14	Providence	F. N. Strickland, Providence	William Shallcross, Providence	
South Carolina	July 8–9	Newberry	R. M. Dacus, Greenville	Frank M. Smith, Charleston	
South Dakota	August 11–13	Madison	D. F. Dexter, Canton	W. S. Buttz, Aberdeen	
Tennessee	July 21–23	Chattanooga	Thomas D. Turner, Henning	Wm. P. Winter, Nashville	
Texas	June 9–11	Ft. Worth	Walter H. Whisenant, San Antonio	Walter D. Adams, Forney	
Utah	June 24–26	Cedar City	George A. Huscher, Murray	John Culley, Ogden	H. E. Peterson
Vermont	June 22–24	Lake Morey, Fairlee	U. S. Livingston, Newport	F. W. Churchill, Proctor	W. E. Chapman
Virginia	June 23–25	Staunton	L. R. Shadwell, Richmond	A. L. I. Winne, Richmond	
Washington	June	Wenatchee	William Lasher, Olympia	H. W. Ayers, Seattle	
W. Virginia	June 23–25	Deer Park, Md.	P. A. George, Ronceverte	Roy B. Cook, Charleston	
Wisconsin	June 23–26	Green Lake	E. G. Raeuber, Milwaukee	O. J. S. Boberg, Eau Claire	B. F. De Hosson
Wyoming		Casper	R. C. Schultz, Worland	L. R. Tyson, Jr., Sheridan	

* Secretaries will oblige by making corrections and sending list of new officers to JOURNAL A. PH. A., 253 Bourse Building, Philadelphia, Pa.